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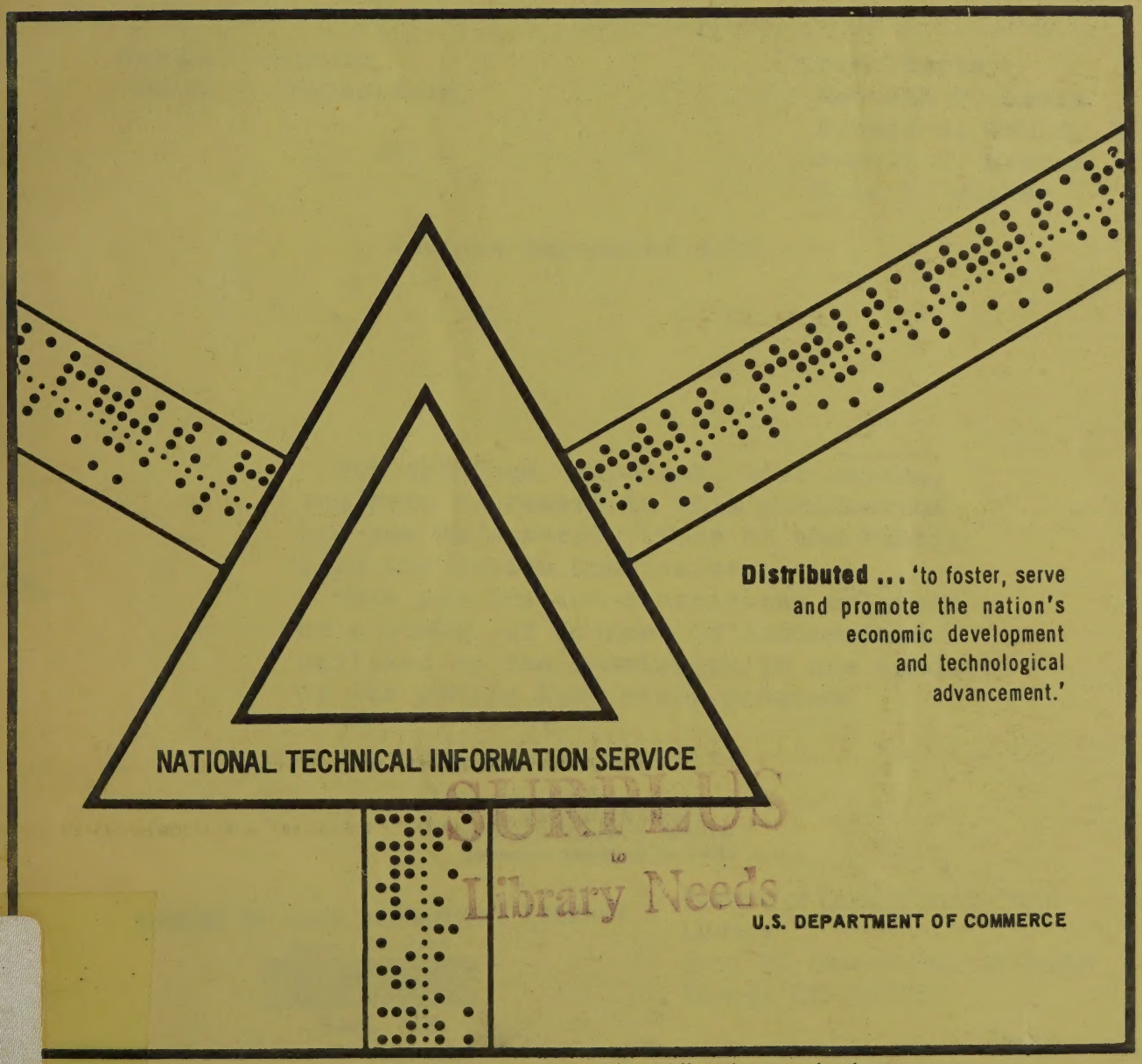
FEDERAL PUBLIC LAND LAWS AND POLICIES RELATING TO MULTIPLE USE OF PUBLIC LANDS

Kenneth P. Davis, et al

Revised September 1970



FEDERAL PUBLIC LAND LAWS AND POLICIES RELATING TO MULTIPLE USE OF PUBLIC LANDS

A Study Prepared
for the
Public Land Law Review Commission

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Revised September 1970

The opinions, findings, conclusions, and data expressed in this publication are not necessarily those of the Public Land Law Review Commission.

This publication constitutes only one of a number of sources of information utilized by the Commission in the conduct of its public land study program.

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FOREWORD

This manuscript is one of a series which was prepared for the Public Land Law Review Commission as part of its data base in forming the recommendations for future public land policies that have been forwarded to Congress and the President of the United States in our report titled One Third of the Nation's Land.[1/]

In establishing the Public Land Law Review Commission in September 1964, Congress declared the following policy: That the public lands of the United States shall be (a) retained and managed or (b) disposed of, all in a manner to provide the maximum benefit for the general public. It also directed that a comprehensive review be made of the public land laws and the related administrative rules and regulations to determine whether and to what extent revisions are necessary to accomplish the stated policy objective.

Considerable evidence pointed to the need for such a review. Dating back in some cases to the birth of the nation, our public land laws have developed over a long period of years through a series of Acts of Congress which are not fully correlated with each other. Administration of the public lands and the related laws has been divided among several agencies of the Federal Government. Quite possibly, these laws and the manner in which they are administered may be inconsistent with one another and inadequate to meet the current and future needs of the American people.

The Commission was instructed to:

1. Study existing statutes and regulations governing the retention, management, and disposition of the public lands;

2. Review the policies and practices of the Federal agencies charged with administrative jurisdiction over such lands insofar as such policies and practices relate to the retention, management, and disposition of those lands;

[1/] Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. - Price $4.50.

3. Compile data necessary to understand and determine the various demands on the public lands which now exist within the foreseeable future; and

4. Recommend such modifications in existing laws, regulations, policies and practices as will, in the judgment of the Commission, best serve to carry out the policy objective.

To fulfill these requirements, the staff was charged with the responsibility of performing or having performed the appropriate research and of then presenting to the Commission all the information and data necessary as a foundation for the Commission's deliberations, conclusions and recommendations. A study program encompassing various subject areas was undertaken and separate manuscripts were prepared covering each of 33 separate topics.

In fulfillment of a policy of maintaining the smallest technical and professional staff possible, most of the studies were accomplished under contract with individuals, institutions such as universities, and research organizations; a few of the studies and analyses were accomplished in-house by the Commission staff, some with consultant assistance.

Thus, while we reviewed the whole body of public land laws at one time, each study was designed to examine only a portion of the public lands complex and should be utilized with this understanding. There is, therefore, an interrelationship among the studies and the resultant manuscripts that will require review and examination of more than one report in order to obtain a complete view of any one aspect of public land law and administration.

Each manuscript was transmitted from the staff with a letter discussing the content of the report and setting forth the policy matters to be considered with respect to the particular subject. A copy of the letter of transmittal for this report has been made a part of this volume in order to assist in the understanding of the approach.

These manuscripts served an extremely useful purpose in providing a common base for discussion in the Commission and between the Commission and its Advisory Council and the representatives of the 50 governors. We believe that they will also be valuable as reference works, not only on Federal

public land matters but concerning all of our natural resources, for use by all levels of government -- Federal, state, and local -- and the academic community as well as those who are interested in the tremendous natural resources that we, as a nation, possess.

Wayne N. Aspinall
Chairman

Public Land Law Review Commission
1730 K Street, N.W.
Washington, D. C. 20006

September 21, 1970

Honorable Wayne N. Aspinall
Chairman
Public Land Law Review Commission
Washington, D. C.

Dear Mr. Chairman:

Transmitted herewith is a study of Multiple Use Concepts and Land Use Decisions on the Public Lands, prepared by the Commission staff with the assistance as consultants of Professors Kenneth P. Davis of Yale University, Ernest M. Gould, Jr., of Harvard University, Ross S. Whaley of Colorado State University, and of Harold C. Nygren of Bainbridge, New York.

This study was originally submitted to you with our letter of February 1, 1970. After you made copies available to the members of the Commission, Advisory Council, and Governors' representatives, the manuscript was reviewed and comments were received from the Advisory Council and Governors' Representatives.1/

These comments were reviewed by the staff and consultants, and those corrections deemed necessary have been incorporated in the study report as now republished by the Clearinghouse for Federal Scientific and Technical Information.

This overview is based in large measure on a review of information developed in other studies prepared for us. Several of the studies dealing with public land commodities contain information on the relationships that exist among various uses of the public lands and the procedures followed by administrative agencies in taking into account competing uses. Two studies contain the most detailed examinations of the subject. The study of Public Land Timber Policy, in an appendix section, examines the conceptual basis for multiple use decisions. The report on Regional and Local Land Use Planning has a more detailed description and analysis of the multiple use principle.

1/ The comments referred to are part of the official files of the Commission. When the Commission ceases to exist these files will be deposited with the National Archives, Washington, D.C.

and its application by the Forest Service and Bureau of Land Management.

Building on the concepts, laws, and their application, as examined in the individual subject studies, the consultants for this study also examined specific examples of public land decisions involving multiple use to illustrate the problems faced by the agencies in weighing different choices among uses. The focus of our concern in designing this study was primarily the considerations involved in making choices in actual resource use and on the need for a framework of information and analysis for comparing possible results of different decisions, in order to provide the Commission with a practical examination of what is sometimes a nebulous principle.

The multiple use acts applicable to the Forest Service and Bureau of Land Management authorize management of the public lands for a variety of purposes. However, the acts give a little guidance as to how Congress intends conflicts among possible uses to be resolved, whether some uses are to receive priority over others, and what results the administrator should be obtaining in terms of resource conditions, support of local industry, etc. As a result, multiple use in the context of public land administration has come to have a variety of meanings. While most people appear to agree that the objective of multiple use is desirable, there is considerable disagreement as to what constitutes good multiple use resource administration or, for that matter, what multiple use is.

The following policy matters were suggested for Commission consideration:

1. With respect to lands that have been set aside for a primary use, e.g., national parks, wildlife refuges, wilderness areas, etc., to what extent, if at all, should secondary resource uses be authorized by statute?

2. To what extent should existing multiple use authority for national forests and BLM lands be modified?

3. Should general priorities be established by statute among authorized uses with guidelines for resolution of conflicts as to either all public lands or by class or category of public lands?

The project officer for this study was Perry R. Hagenstein.

Sincerely,

Milton A. Pearl
Director

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Harry L. Moffett served as Assistant Director (Administration) from October 1966 to July 1969, and Leland O. Graham, Arthur D. Smith and Max M. Tharp made significant contributions as members of the staff prior to August 1969.

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PUBLIC LAND LAW REVIEW COMMISSION

Background

The public lands of America date back to the time of the Union's formation. Then, and soon thereafter, seven of the original States ceded to the Central Government some 233.4 million acres of land lying westward to the Mississippi River. Thereafter, through purchase and treaty, the United States acquired an additional billion acres of public domain, the last acquisition being the purchase of Alaska from Russia in 1867. Altogether, nearly 2 billion acres of land in 32 States have been part of the public domain at one time or another.

At first, these lands were sold for their revenue. Eventually, however, as the pioneers swept westward, the revenue-raising policy was replaced by one stressing settlement and development of the land. The Homestead Act of 1862 was the first of a series of settlement and development laws enacted over a period of some 60 years - the desert land law, mining laws, and the various homestead laws - all designed to meet a particular need of the period. Meanwhile, many millions of acres were transferred to private ownership through military, railroad, and other land grants, including various grants to the States.

Through these means, nearly 1.2 billion acres have passed from Federal ownership, leaving approximately 715 million acres of the original public domain lands in Federal ownership. Of these 715 million acres 364 million are in the State of Alaska. Add to this the 52 million acres acquired for various purposes, and federally owned lands today amount to approximately 770 million acres - about one-third of the Nation's total land area. Some of these lands are in national forests and some are reserved for national parks, wildlife refuges, and other specific uses; but more than half constitute the "vacant and unappropriated" public domain lands which have never left Federal ownership and have not been dedicated to a specific use pursuant to legislative authorization.

The Act establishing the Public Land Law Review Commission contains in section 10 the following definition:

> As used in this Act, the term 'public lands' includes (a) the public domain of the United States, (b) reservations, other than Indian reservations, created from the public domain, (c) lands permanently or temporarily withdrawn, reserved or withheld from private appropriation and disposal under the public land laws, including the mining laws, (d) outstanding interests of the United States in lands patented, conveyed in fee or otherwise, under the public land laws, (e) national forests, (f) wildlife refuges and ranges, and (g) the surface and subsurface resources of all such lands, including the disposition or restriction on disposition of the mineral resources in lands defined by appropriate statute, treaty, or judicial determination as being under the control of the United States in the Outer Continental Shelf.

Working with the Commission are a 33-member Advisory Council and the representatives of the 50 State Governors.

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INTRODUCTION

The Public Land Law Review Commission was established by the Act of September 19, 1964 (PL 88-606) to review the laws, policies, regulations, and practices guiding the administration of the public lands of the United States. On the basis of its review, the Commission is to make recommendations to the Congress and to the President as to whether these lands should be (a) retained and managed or (b) disposed of so as to obtain the maximum benefit for the general public. This study was done to provide information that will aid the Commission in its task.

Multiple use is a term used variously to describe the broad management responsibilities of some public land agencies, the manner in which some classes of lands are administered, an objective of administering some classes of public lands, and what occurs naturally or by intent on some or all public lands. Whatever the definition of the term, it is generally used in the broad context for land use planning and decisions. While some or all of the definitions of multiple use may have relevance to the basic decision of whether or not to dispose of a parcel of public land, it is generally thought of in the context of lands that are being retained in public ownership and that is the context of this study.

Other Commission studies have dealt with multiple use. The study of Regional and Local Land Use Planning provided a detailed examination of the procedures followed by the public land agencies in planning land uses and deciding among possible alternative uses. For the two agencies that have so-called multiple use authority, the Forest Service and the Bureau of Land Management, the planning study provides a description of their basic authorities: The Multiple Use and Sustained Yield Act of 1960 for the Forest Service and the temporary Classification and Multiple Use Act of 1964 for the Bureau of Land Management. This examination is not duplicated in the present study, but rather is used as the basis for an examination of some of the problems encountered in applying the directives in these acts. The planning study also provides a description

of land use planning procedures of the National Park Service and Bureau of Sport Fisheries and Wildlife and other agencies responsible for the administration of public lands. None of these agencies have so-called multiple use authority, but all of them administer public lands for a number of different purposes and a variety of goods and services are derived from these lands.

The commodity studies of the Commission, each of which deals with a different commodity or output, of the public lands, also provide information relevant to an examination of multiple use and land use decisions. Generally, each of these studies provided some information on the relationships of the commodity in question to other commodities or uses of the public lands. The basic production and use relationships among the various commodities on particular areas of public lands are a fundamental fact whose nature must be understood by the land manager if land use decisions are to be made so as to maximize net benefits. In the conduct of the commodity studies, it was found, however, that many, if not most, of these relationships are not well defined. Therefore, the land managers must make many of their decisions on the basis of inadequate information. While the present study also uses the commodity studies as a base, its purpose is not to develop information on the production and use relationships among the public land commodities.

Purpose and Procedures

The purpose of this study is to provide information helpful to the Public Land Law Review Commission in evaluating the following questions:

1. With respect to lands that have set aside for a primary use, e.g., national parks, wildlife refuges, wilderness areas, etc., to what extent, if at all, should secondary resource uses be authorized by statute?

2. With respect to national forest and BLM lands where no particular use has previously been declared dominant:

   a. Should a formal system of "dominant" uses be provided for, keyed to the highest and best uses of particular areas?

(1) If so, what statutory guidelines, if any, are needed to specify the extent to which other resource uses should be authorized?

b. Should the authorized uses on such lands be more completely enumerated, e.g., contrast those specified in the Multiple Use Act of 1960 for the National Forest System with those contained in the Classification and Multiple Use Act of 1964 for BLM lands?

3. Should general priorities be established by statute among authorized uses with guidelines for resolution of conflicts as to either all public lands or by class or category of public land?

To provide this information, the study is presented in three parts, plus an appendix. These are 1) an analysis of concepts and purposes of land use and land use planning, particularly as related to existing statutory authority for the administration of public lands and as implemented administratively; 2) a group of case examples presented in summary form, which show the kinds of land use allocation problems that occur on the public lands and the means of resolving them; and 3) an integrative analysis of problems and possible alternatives associated with the application of multiple use concepts on the public lands. The appendix contains an examination of three case examples, which because of the form in which it was developed was not included together with the other case examples in the second part of this report.

The report was prepared as a staff report with the aid of consultants. These are Professor Kenneth P. Davis, School of Forestry, Yale University; Professor Ernest M. Gould, Jr., Harvard School of Forestry, Harvard University; Harold C. Nygren, Consultant, Bainbridge, New York; and Professor Ross S. Whaley, College of Forestry, Colorado State University.

CONCEPTS AND PURPOSES OF LAND USE AND LAND USE PLANNING

Lands are managed for various purposes and this holds for private as well as for public ownerships. As applied to Federal lands, direction as to purpose is given through statutory, congressional, executive actions and by administrative procedures and interpretation. In the case of private ownerships, direction may be explicit in the form of policy statements or may show only as "a way of doing business". In both cases, however, land management comes down to making choices among alternative patterns of land use and alternative investments in management practices.

Specific concern in this study is with the Forest Service, the Bureau of Land Management, the Bureau of Sport Fisheries and Wildlife, and the National Park Service. Of these agencies, the Forest Service and the Bureau of Land Management are the largest in landownership, have the broadest statutory authorization and a very wide range of lands and land uses to administer. Attention accordingly is focused on these two agencies as representing the principal issues and problems of Federal land management. The missions of the National Park Service and Bureau of Sport Fisheries and Wildlife with respect to public lands are much narrower than those of the Forest Service and BLM. The 1916 Act that established the National Park Service gave as its basic mandate the conservation of scenery, natural and historic objects and wildlife so as to provide for enjoyment by the public. The wildlife refuges and ranges are maintained for wildlife conservation and rehabilitation. These purposes, both those of the national parks and wildlife refuges, are served, together with others, under the broader mandates of the Forest Service and Bureau of Land Management.

Multiple Use and Sustained Yield Acts of the Forest Service and Bureau of Land Management

These agencies each have a long background and there are a number of statutes, executive and congressional directives and legal decisions that continue to affect the administration

of lands under their control. However, the present primary overall statutory policy base for their land management activities are given in two acts - as follows:

Forest Service - The Multiple Use and Sustained Yield Act of 1960: "An Act to authorize and direct that the national forests be managed under principles of multiple use and to produce a sustained yield of products and services, and for other purposes".(16 U.S.C. 528-531) Approved June 12, 1960.

Bureau of Land Management - The Classification and Multiple Use Act of 1964: "An Act to authorize and direct that certain lands exclusively administered by the Secretary of the Interior be classified in order to provide for their disposal or interim management under principles of multiple use and to produce a sustained yield of products and services, and for other purposes". (Public Law 88-607, 78 Stat. 986. Approved September 19, 1964).

The two Acts are similar as regards multiple use and sustained yield. The Classification and Multiple Use Act of 1964, however, also includes provision for land classification to identify lands that should be disposed of and those that should be retained. Disposal of lands is a particular situation applicable to the BLM and not to the other public land agencies under most conditions. The principle of land classification and development of criteria for classification are, however, significant in the context of land use planning and decisions.

The key language in the two acts is essentially the same with respect to the strength of the directives to the Secretary of Agriculture and the Secretary of the Interior. The Secretary of Agriculture "is authorized and directed to " and the Secretary of the Interior shall" develop and administer the lands for, in the case of Agriculture, the renewable surface resources of the national forests, for multiple use and sustained yield of the several products and resources therefrom".

In the case of the Department of Agriculture, "due consideration shall be given to the relative values of the various resources in particular areas". The Department of the Interior shall "give due consideration to all pertinent factors, including but not limited to ecology, priorities of use, and the

relative values of the various resources in particular areas" and this applies to both disposal and retention of lands.

The language of the two Acts is the same in both with respect to definitions of multiple use and sustained yield, as follows:

> "Multiple use" means: The management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.
>
> "Sustained yield of the several products and services" means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land.

There are important differences in the two acts among the list of products or services for which the lands are to be "administered" in the case of Agriculture and "managed" in the case of Interior.

Agriculture	Interior
"Administered for"	"Managed for"
Outdoor recreation	Outdoor recreation
Range	Domestic livestock grazing
Timber	Timber production
Watershed	Watershed protection
Wildlife and fish	Fish and wildlife development and utilization
1/	Wilderness preservation
	Industrial development
2/	Mineral production
	Occupancy
	(Preservation of public values that would be lost if the land passed from Federal ownership

1/ Elsewhere in the 1960 Act it is stated that "the establishment and maintenance of areas of wilderness are consistent with the purposes and provisions of this Act".

2/ Elsewhere in the 1960 Act it is stated that "Nothing herein .... shall affect the use or administration of the mineral resources of national forest lands".

Presentation of the key provisions of these two Acts, as given above, provides a basis for an appraisal of their content as directives for land use by the two major Federal land management agencies. Although both of these acts are rather general in nature, they do provide some fairly clear directives as to means of implementing multiple use management. The mandatory directives are:

1. The two Secretaries are authorized and directed by the Congress to administer and manage the land areas under their respective jurisdiction for multiple use and sustained yield as defined in the Acts. This makes such policy direction mandatory.

2. The Secretaries shall give "due consideration" to all the several resources enumerated in the Acts without prejudice or favor. This last is not explicitly stated but is implied as no preference or priority of land uses is given in the Acts.

3. The Secretaries shall consider relative land use values in particular areas. This provision does two significant things. First, it introduces the basic motion of relative values, which implies value measurements to guide land allocation decisions as between uses. Second, inclusion of the phrase "in particular areas" recognizes that the principles of multiple use cannot be applied wholesale but must selectively be applied area by area. In other words, on-the-ground land management, because of the inherent nature of land diversity, is an *in situ* matter.

4. Inclusion of the idea in the 1960 Act, with respect to relative values of the various resources, "greatest dollar return or the greatest unit output" is not a necessary criterion introduces social considerations that go beyond economic or physical matters only.

5. The stipulation of management for sustained yield is of great significance, often overlooked because of preoccupation with decisions as to land uses. Sustained yield requires that, whatever the use or uses, the land shall be managed for continued output "without impairment of the productivity of the land".

In total, these Acts give a very broad charter of land management for these two agencies and provide some broad

direction as to their implementation, but do not stipulate specific criteria or procedures in their administration. This is the responsibility of the respective agencies. Because there neither is nor can be any specific formula for arriving at specific land use decisions in the "interests of the American people", it is evident that these agencies are exposed to the full crossfire of public interests and desires which often conflict in arriving at sound decisions. The public land agencies have the very substantial responsibility of translating the directives of Congress and the expressed desires of the public into meaningful criteria for choosing among alternative use of the public lands.

Land Management Concepts and Purposes

The foregoing analysis of the statutory directives to the two Federal agencies having very large and broad land management responsibilities provides a basis for consideration of land management concepts and purposes. It also gives a perspective for considering land use decisions in the full context of all lands, without regard to particular ownerships.

To get to the core of multiple use meaning and application, it is necessary to consider it in terms applicable to any land and purposes of ownership. The following three propositions give the basis of the multiple use concept.

First, lands can and do produce many goods and services and in many circumstances they can be produced in various admixtures and combinations on a particular area of land.

Second, in many situations, total net benefits however measured, and not necessarily limited to dollar measurements, can be increased, and perhaps maximized, through some judicious combination of two or more uses on a particular area of land as compared to single use of the land only.

Third, some harmonious and compatible combination of land uses, with flexibility for change in the future and without significant impairment of the land, is desirable in the public interest.

Presented in these terms, it is apparent that the concept of multiple land use is very general and not limited to forest or any other kind of lands. It is not even limited to

lands, but can apply to structures, to multi-purpose water projects, and the like. But more important is the point that multiple use is only one of the possible concepts of land use. Further, concepts of land use are expressions of different ownership purposes applied to particular areas and from the legitimate purposes of the owner and land use capabilities.

Different combinations of land uses, distinguished essentially by the way in which they may be spatially combined, are sometimes thought of as being the basis of land use concepts. Several possibilities are considered here. A general wildland setting, such as the public lands, is assumed to exist, but other situations could, in principle, apply as well.

First, there is the case of exclusive single use of a particular area, where no other use is considered or perhaps can be tolerated at a given time. A fully-developed campground, a formally established natural area for research purposes, or even intensive timber culture are examples. Other uses are considered incompatible because they would preclude use of the area for the exclusive use or would impose costs that are considered to be too high. For example, timber harvesting may be incompatible with a developed campground. By shifting the location of the campground, within the timber area, these two uses could perhaps be made compatible, but the cost of changing campground locations may militate against such use.

Second, a land area can be managed for a primary use with other compatible uses permitted or encouraged to the extent they do not significantly conflict with or reduce the productivity of single use or of the total area. This approach is sometimes called the dominant use approach. One example is a range area where domestic cattle grazing is the dominant use but is compatible with wildlife use of the area. In fact, the feeding habits of cattle and some big game species are complementary in some cases with respect to the plants that are eaten. Another example, which occurs in the southern United States, is the management of forests for quail production as the dominant use, with timber production as the secondary use.

Third, there is the case of deliberate and purposeful mixing of several reasonably compatible land uses on a particular area of substantial size. One example of this case is the management of an area on which timber production is

practiced fairly intensively on the better timber sites but much attention is given to stand treatment and to fringe or interspersed areas to promote game production. A pleasing general land appearance can also be maintained. Many such examples could be given. The characteristic of this category is a fairly close admixture of two or more uses, in part on the same acre but also in a mosaic-like pattern over a larger area. A single use may be dominant in a particular place but not over the area as a whole, since a conscious attempt is made to combine uses in some harmonious pattern. Maximization of economic gain may or may not be the objective.

It should again be emphasized that the general idea of multiple use is not at all limited to wildland situations. In fact, there are probably even more possibilities in agricultural and urban situations although the specific context is different. The examples given should, however, be sufficient to support the fact that concepts or patterns of land use cannot be thought of independently but basically derive from the character of the land, actual compatibility of uses, and the purposes of land management to serve the interests of the landowner.

The nature of essentially natural combinations of uses which is often characteristic of wildlands, should be recognized. Establishment of a wilderness area, for example, does not change the basic watershed and wildlife regimen of the area. Although wilderness is sometimes thought of as an exclusive use, watershed, wildlife, and perhaps other values continue to be produced on wilderness areas and, in fact, cannot really be eliminated. Because of the low intensity of wilderness use (although too often it is heavy in particular places) and the general protection that is given to such areas, watershed and wildlife values are maintained as a natural concomitant of wilderness.

To conclude this appraisal of land use concepts and purposes, particular attention should be directed to the term

"compatibility", which has been used a number of times. The word means "capable of co-existing in harmony", which accurately describes the key physical requirement for some blending of two or more uses in land management. Some uses are much more mutually compatible than others and some lands are more capable of being managed to meet more than one objective. It is a matter of degree.

To use some familiar wildland examples, consider timber and wildlife production as land uses. Specifics vary widely but in many situations there is a natural compatibility and often a necessity, for co-existence of wildlife with timber growing on the same area. Food that sustains most wildlife is close to the ground, and dense high-forest situations are, in general, inimical to such food supply. With normal planned timber production as a primary use, especially under even-aged management on short rotations, stand regeneration is constantly going on over the managed area. This stimulates the development of low herbaceous and shrub cover, which produces wildlife food. Further, by stand management, such as partial cutting in older stands or use of prescribed burning where applicable, and especially where there is a strong ecological trend towards deciduous species as is often true in coniferous management, good food supply and cover conditions can be maintained more or less continuously with moderate adjustment of timber management practice. Timber production may not be increased over the total area; in fact, it could be somewhat diminished by such adjustment. Such a situation can, however, result in increasing total production of goods and services from an area on an economical and practical basis. Such management also can, again as a result of conscious effort and moderate cost, lead to areas of generally pleasing aesthetic quality and recreational value (hunting is also a part of such value).

A reverse situation occurs in areas where wildlife production is a primary concern, such as on areas managed by the Bureau of Sport Fisheries and Wildlife. Here, a moderate degree of timber management and use is often needed to maintain and enhance wildlife production. In the absence of timber oriented programs, it may become necessary to remove timber by means other than commercial timber harvesting.

Certain wildland uses tend, to a greater or lesser degree, to be incompatible. Intensive recreational use, such as campgrounds and picnic areas, in relation to wildlife,

timber, or domestic stock grazing are general examples. There are also many situations in which neither domestic grazing nor big game mix well with timber production. This usually occurs where heavy concentrations of livestock or big game interfere with the reproduction of timber stands. Many examples can be seen around the country where attempts to mix these uses have been unsuccessful and where neither stock, big game, nor timber have been well served by the attempt. The result is a misapplication of the multiple use approach because total net productivity of an area has been reduced through an attempt to combine incompatible uses.

Illustrations of similar examples could be continued at length. The point to be emphasized is that successful application of multiple use principles depends on the actual compatibility of different land uses as applied in particular areas. This is a technical problem and must be recognized as such. It cannot be solved by generalities, popular opinion, or by general procedures, but must be appraised and evaluated on the basis of scientific knowledge applied on land areas.

Federal Public Land Management Under Multiple Use Principles

The preceding analysis of the statutory nature of multiple use and of land use concepts and purposes has cleared the way for direct examination of public land management under multiple use principles by the Federal public land agencies. Relationships to other land management agencies are also considered. The pattern here is to consider first agencies having the widest latitude for consideration of land uses and then those with less latitude.

Forest Service and Bureau of Land Management

Through broad statutory authority and because of very large land holdings, the Forest Service and the Bureau of Land Management have the widest scope for application of the principles of multiple use of any agencies in the United States. The Multiple Use and Sustained Yield Acts can be regarded as providing a concept of land use only in the broad sense that they stipulate that all uses shall be fairly considered and may be applied in any appropriate combination. The Acts are,

consequently, indefinite insofar as constituting any particular concept of land use describing how individual uses are dispersed or combined on land areas. They are permissive of a number of concepts.

The respective Acts specify that all enumerated products and services are to be given consideration, and by implication without prejudice, to meet the "needs of the American people". Land use combinations can range from single or exclusive use to any combination of uses, whether considered as being applied to smaller contained areas. No statutory prescription could, or perhaps should, be made in this respect.

As regards the crucial and perennially difficult problem of deciding upon which uses shall apply where, and how the land shall be managed for these uses, statutory authority is limited to the mandatory requirements of: 1) "due consideration" and provision of latitude "for periodic adjustments in use to conform to changing needs and conditions"; 2) consideration of ... "relative values of the various resources in particular areas"; 3) the permissive provision that "the combination of uses that will give the greatest dollar return or the greatest unit output" is not necessary; 4) the overriding stipulation of sustained yield.

These provisions give broad policy directives but do not and cannot provide any formula for specific solution of problems and application on the ground. This is left to the agencies. As a consequence, it is necessary to recognize that they must operate in full exposure to the changing and variously expressed needs of these same "American people" for whom these lands are to be administered. They are constantly open to pressures of all kinds, local, regional, and national, from all sides. Meeting these pressures can be very time-consuming and expensive. In the American political democracy, consideration of these pressures is, however, a necessary part of making land use decisions in the public interest and must be recognized as such. Technical judgments without consideration of needs are insufficient as a basis for deciding on land uses in a multiple use context.

For these reasons, decision-making processes are complex and variable. The responsible public land administrator

makes the decisions according to statutory and administrative directives. But such decisions are also tempered by responsiveness to changing public needs as well as they can be determined. There is no formula or single procedure for such determination. This is part of the art of successful public land management.

There are some differences between the 1960 and 1964 Multiple Use Acts which seem important, at least potentially, and which raise policy questions. The Forest Service Act, by itself, is limited as a full land management charter in that it enumerates five wildland surface uses only, counting wildlife and fish as one use, as given in the Act. It is also based on the assumption that the national forests are to be administered for these purposes only except as provided elsewhere by law or Secretarial regulations. The Act does not give nonrenewable resources such as minerals or other surface uses, such as residential or rights of way uses the same status as the five wildland surface uses. Other uses of the land, including industrial, residential or commercial development are also desirable "in the interests of the American people", but are not recognized as uses of the national forests except under rather restrictive exchange procedures. The use of national forests as a source of minerals, whether under the existing location or leasing laws is also not recognized in the Multiple Use Act other than as an exception to generally applicable uses.

In contrast, the BLM Act also enumerates for retained lands, in addition to wildland uses, industrial development, mineral production, and a general category: "Preservation of public values that would be lost if the land passed from Federal ownership". The latter "use" is perhaps more relevant for BLM, where the Classification and Multiple Use Act provides for classification for retention in Federal ownership or disposal out of Federal ownership. But it also provides a sense of flexibility in land uses by recognizing that there are cases where specific public values not encompassed in the major categories are found on the public lands. Inclusion of the other items also indicates a broader range of land management concern. For e xample, it gives direct recognition of the need and legitimacy of mineral production as a necessary land use and of "industrial development" and "occupancy".

Bureau of Sport Fisheries and Wildlife and the National Park Service

The statutory basis and other directives relative to land management by these agencies are more limited in the sense of providing for various uses than are those for the Bureau of Land Management and the Forest Service. The range of their land management decisions is correspondingly restricted. Benefits such as watershed protection accrue from management by both agencies. These values are of importance but are primarily a natural consequence of general area protection rather than of positive and direct land management action, which is the primary concern in this study.

The uses for which national parks and wildlife refuges are established have generally been stated in the legislation authorizing the creation of the parks or refuges. The National Park Service has no broad directive for management that is equivalent to that of the Forest Service or BLM in the Multiple Use Acts. The Bureau of Sport Fisheries and Wildlife does have statutory authorization to consider other uses where compatible with those for which the refuges were established. In effect, wildlife is the "dominant" use of the refuges and other uses are subordinate, although permitted.

CASE EXAMPLES

Several case examples of land use planning on public lands were selected to provide illustrations of the kinds of problems that arise in choosing among the various possible uses of public lands and to show the complexity of so-called multiple use planning. Some of the examples deal with issues that have developed as a result of the kinds of decisions that were made. Other examples deal with matters that have never reached the stage of becoming public policy issues.

As indicated previously, the study generally treats the methods used by the Forest Service and Bureau of Land Management, inasmuch as these are the public land agencies with the broadest management charters and best illustrate the problems in choosing among alternative land uses. The case examples reflect this; most of them concern Forest Service and Bureau of Land Management lands. Three case examples that deal with BLM lands were prepared according to a different format than the other examples and, as a result, are included as Appendix A to the report rather than being integrated into this section with the others.

Although the examples concern a variety of planning matters, an attempt was made to provide some semblance of consistency in describing them. Generally, the approach was to describe the broad outlines of the case examples, the resources and values that are involved, the procedures or actions taken by the administering agencies, and a concluding statement of what the case example shows.

The Sylvania Tract: Development of Preservation

The Situation

The Sylvania Tract is a recent Federal acquisition within the Ottawa National Forest in the Upper Peninsula of Michigan. It is an 18,000 acre tract of lakes and forests that had been in private ownership since the early 1900's and used as an exclusive hunting and fishing club. When it became known that the estate holding Sylvania wished to dispose of it, the Forest Service was asked by members of the Michigan congressional delegation to study possible acquisition of the tract as an addition to the Ottawa Forest and the Michigan Conservation Commission suggested that acquisition by the Forest Service would best serve the public interest. Acquisition was also supported by a broad range of conservation organizations. A Forest Service survey judged Sylvania to be an excellent opportunity for public development and use.

However, it was also made clear that Federal acquisition would have a serious impact on the tax base of Gogebic County. Watersmeet Township, in which Sylvania lies, would be especially affected. Assured that, with development as an outstanding recreation area, Sylvania could be an asset to the economy of their area, both the Watersmeet Township Board and the Gogebic County Board of Supervisors gave approval to the purchase and the tract was acquired.

Immediately after the acquisition the Forest Service began a careful planning job. Agency personnel assisted by University of Michigan faculty people and Michigan Conservation Department personnel made surveys of soil, water, wildlife, fisheries, ground vegetation and timber. A University of Michigan landscape architecture graduate class was invited to visit Sylvania and submit design alternatives for its development. As finally developed, the plan for Sylvania provides for a road close to the boundary on the north and west sides of the tract. A 100 unit campground and a 100 unit picnic ground and beach facility were planned to be accessible from the road on the north. An additional 150 unit campground to the west of Sylvania on an adjacent national forest tract was also provided in the plan. No road or other development was planned in the remainder of the tract with the exception of 40 primitive campsites accessible by trail or boat.

The plan also provided for zoning. Four thousand acres of the 19,000 acre planned area consists of water surface. A 5,000 acre botanical zone in which no cutting is permitted, a 1,650 acre pioneer zone, and a 2,850 acre water and travel zone in which cutting may be done only with the approval of the Regional Forester to salvage large areas of blow down were provided in the plan. The area taken up in roads, campgrounds, picnic grounds and information service amounts to 730 acres.

As the plan was being prepared, the Forest Supervisor was very conscious of the local feeling that Sylvania be developed in a way that would enable it to attract and accommodate large numbers of people. The western part of Michigan's Upper Peninsula is economically depressed. The last iron mine in the area closed in 1966, about the time Sylvania was acquired. Development of the tract was viewed by many local people as a way of relieving the depressed economy of the area. Approval of the Gogebic County Board of Supervisors was necessary before the tract could be acquired and this approval was at least partially predicated on the assumption that the tract would be developed in accordance with local views.

The intent of Congress that it be developed as a recreation area seems clear. It was purchased with money from the Land and Water Conservation Fund. Senator Hart appeared before the Senate Interior and Related Agencies Appropriations Committee to request funds for development of the area to provide for recreation uses.

The supervisor of the Ottawa National Forest was also conscious of the feeling on the part of many conservationists that Sylvania should not be developed. The Regional Forester, who was to approve the plan, was even more sensitive to the expressed feeling of these people. The views of this segment of the public played an important part in shaping Forest Service thinking as to the proper development of Sylvania.

Prior to acquisition, supporters of the Sylvania acquisition publicized the opportunity in a widely circulated brochure. This brochure indicated a central public use area in Sylvania with access provided by a two-lane blacktop road from US 2 on the north and from US 45 on the east. Because of the feelings expressed by conservationists, the central public use area was dropped and the concept of periphery development was adopted. As planned, the Sylvania Tract can

be characterized as a small scale wilderness canoe area rather than as an area to accomodate a wide range of the recreation public

Action Taken

Before the plan was approved, the Regional Forester called a meeting of representatives of organizations which had evidenced an interest in Sylvania. Representatives of the University of Michigan, Michigan State University, Michigan Technological University, the Sierra Club, the Audubon Society, Kimberly-Clark Corporation, Watersmeet Township, and the Michigan Natural Resources Council attended. As a result of this review of the proposed plan, several editorial revisions and a few substantive revisions were made in the plan.

Despite the intention that Sylvania be planned as a public use recreation area, a group of Wisconsin and Michigan citizens brought suit in November 1969, for a temporary injunction to stop development. They claimed the Forest Service did not give full and proper consideration to the wilderness aspects of the tract under the Multiple Use Act. At the hearing before a Federal judge, a former Department of the Interior official testified that he believed the Sylvania Tract would attract a greater number of people if it was kept relatively undeveloped. On the other hand, a University of Wisconsin professor said a large scale economic impact could not be maintained over the long haul because the level of use necessary to sustain economic activity would destroy the wilderness experience that attracts people to the area in the first place. Representative Philip Ruppe, in whose district Sylvania lies, said that the plan might fall short of the expectations of the people of Gogebic County if it were modified so as to limit recreational development. He said he did not believe Congress would have authorized the purchase without the understanding that the area would be widely used and developed. Federal Judge W. Wallace Kent refused to grant the temporary injunction. Judge Kent pointed out that the Forest Service had sought the advice and counsel of many people and noted the intent of Congress in discussion of plans for the area as a public recreation area.

Conclusions

The plaintiffs in the suit for the injunction charged the Forest Service with failure to give full and proper consideration to the wilderness aspect of the tract under the Multiple Use Act of 1960. Multiple use is defined so broadly in this act and in the Forest Service administrative instructions that the national forest supervisor could have planned anything from full resource and public use to wilderness.

. Because the Multiple Use Act is so permissive of broad judgments and because measures of public needs for rational evaluation are lacking, weighing the needs of people is bound to be on the subjective basis and an evaluation of public opinion by the administrator at the decision level is bound to be the principal input.

When management objectives and directions for Sylvania was being considered by the regional staff, proposals offered ranged from complete wilderness to management quite similar to the remainder of the Ottawa Forest. A similar range of proposals was received when design alternatives for Sylvania were considered by a class of graduate landscape architects at the University of Michigan. Here the range was from complete preservation with use only by researchers for ecological studies and educational use to full resort development. One proposal from a faculty member at the graduate school of landscape architecture at the University of Michigan for a monorail connecting adjacent proposed resorts is now, in retrospect, the wildest of dreams, even though this proposal, if economically feasible, might have more closely met the concept that Sylvania be developed in a way that would most benefit the economy of the area.

Choosing among alternatives that involve development and those that would result in little or no change in a case such as that of the Sylvania Tract is a very difficult task for an administrator. In the current climate of concern for natural beauty and air, water, and noise pollution, forces for preservation have a great advantage in the competition for public opinion over those who favor use of natural resources. But the country still needs timber products and people still need areas for recreation of different kinds. Products and play areas on the public land can be provided with safeguards that will prevent environmental abuses. However, to propose

this course of action in the face of public concern that may not appreciate the possibilities of land management takes more courage than can be expected of agency officials without the strong and clear support of Congress.

In fact, the northern hardwood timber types in Sylvania lend themselves to management and can produce timber while an attractive environment is maintained. This has been well demonstrated at the Dukes Hardwood Experimental Forest on the Upper Peninsula over the past 30 years. The option to consider this approach to development of the Sylvania Tract, however, was never really open to the administrators charged with management of the area.

This is not to say that the plan for management of the area is either the right one or the wrong one. The purpose of this case is to point out that the apparent latitude in the Multiple Use Act of 1960 does not always exist in real cases and that the lack of directives in the act leave the administrators with little leverage in opting for unpopular choices. It is easy to understand why a national forest supervisor trained in and dedicated to the development and management of resources for the use of people finds it difficult to accommodate his view to those of people dedicated to preservation of the natural conditions. Without clear direction as to the management objective for the land he manages, he is in a dilemma.

The Magruder Corridor

This case example deals with an area of 173,000 acres of rough mountain lands, entirely in national forests in North Idaho. The area is known as the Magruder Corridor and concerns a conflict in land use centering largely on recreation-wilderness and fisheries values in relation to management for timber production. The issue came to focus through rather widespread public opposition to Forest Service plans for the management of the area established under their broad multiple use planning procedures. The opposition became intense enough to prompt Secretary of Agriculture Orville L. Freeman in 1966 to appoint a special six-man "citizens committee" to study the situation and report to him.

The Situation

The Magruder Corridor area of 173,000 acres is on the Upper Selway River of North Idaho. It lies between two major wilderness and primitive areas. The Selway-Bitterroot Wilderness Area of 1,240,000 acres established in 1963 lies to the north. The Salmon River Break Primitive Area of 217,000 acres is on the south and similar primitive wildlands extend further south beyond the Salmon River in the Idaho Primitive Area. To the west is the Nezperce National Forest and the eastern boundary is the Idaho-Montana line. The Magruder area is a part of the Bitterroot National Forest.

The Corridor name came from the fact that the area furnishes one of the few passable routes of geographic significance between Montana and north Idaho. It was the southern route used by the Nezperce Indians and is presently traversed by the Elk City, Idaho to Darby, Montana, road constructed by the Forest Service.

Since 1936, the Corridor was a part of the Bitterroot-Salmon Primitive Area and was managed on an essentially custodial basis, which primarily involved protection of the area against wildlife. When the Bitterroot-Salmon Wilderness Area was established in 1963, after much study of boundaries and with extensive public hearings in 1961, the Corridor was withdrawn from "primitive area" designation and placed under general national forest status. Administrators of the Bitterroot National Forest accordingly initiated plans for

application of multiple use management, including timber management. A multiple use plan for the Magruder Ranger District, including the Corridor area, was released in 1965. Plans for a timber sale in the Gabe-Cayuse creeks area were developed and by 1966 some 15 miles of permanent road location had been made for timber cutting access. Other land use developmental planning was also initiated but proposed timber use was the only one that would make major changes on the ground, aside from improvement and partial relocation of the existing Elk City-Darby road.

Resource Values and Problems

There are five important natural resource values in the area. Each is described briefly as to character and general importance.

Recreation.

Lying between two major wilderness-primitive areas of the United States in a rugged and scenic mountain area, the Corridor patently has substantial recreational value. It comes in two parts. First, it is an attractive area in itself and is now used for scenic driving enjoyment, some camping, fishing, and hunting. Because of the generally primitive character of the country and the distinctly limited areas of semilevel ground not too close to streams in an area of characteristically V-shaped valley bottoms, the area has relatively limited potential for recreational development. Second, the area serves important access and servicing functions for recreation in the large wilderness-primitive areas to the north and south. A spur road down the Selway River to the Paradise Guard Station serves such a function now, as well as serving administrative purposes.

Soils and Water.

The soils of the area are formed of coarse grained granitic materials that are very subject to physical disintegration when exposed to air. They are unstable, weak-structured, and have very high succeptibility to water erosion, which is made potentially severe by the steep slopes of the area. It is both difficult and expensive to build roads in the area, especially near the V-shaped valley bottoms where loose soils accumulate, without causing soil erosion and sedimentation of the streams. The area is

subject to periodic rain and snow floods and stream beds are relatively unstable, especially if disturbed, as by road construction. Watershed resources are important as a headwaters area of the Snake River basin and stream sedimentation is deleterious to fish resources.

Fisheries.

The area is considered important as a segment of limited and diminishing free-flowing streams in the Snake River drainage. It is particularly valuable as a spawning area for the anadromous chinook salmon and steelhead trout. Heavy expenditures have been made in the Columbia River system to preserve the anadromous fisheries and the Magruder Corridor is an important headwater segment. Native trout, primarily the cutthroat, are present for local sport fishing but the population is not high nor will it be because the streams are relatively unproductive for these local populations.

Timber.

The present standing timber resources of the Magruder Corridor are substantial in total volume, estimated at some 924 million board feet on 146,000 acres. Of this, nearly all of the value is in ponderosa pine which occupies 21 percent of the area as a type, which is considerably dispersed, and aggregates 22 percent of the total volume. No logging has ever been done in the area. With the Elk City-Darby road as major access, a substantial portion of the timber has enough stumpage value to support its logging and transport to the Bitterroot Valley for processing. However, except for the ponderosa pine, the stumpage value is minimal, and the present economics of practicing positive timber growing in the area are very marginal.

There are two major problems of timber management from an overall resource management standpoint. The first is that road building, through resultant erosion and sedimentation, constitutes the greatest single potential hazard to water values. Costs of construction and maintenance to prevent such damage are very high. The second is that present methods of timber cutting and regeneration, often done in clearcut areas, together with road-scarring are a definite aesthetic detriment to the generally wildland and scenic character of the Magruder area. The marks of logging here

will not pass quickly and are hard to conceal from vision over much of the area. There is a definite use conflict here. Recreation values are real but difficult to evaluate.

Wildlife.

The area provides habitat for the usual spectrum of birds and mammals of the northern Rocky Mountains. They are natural features of the area, are important, and are to be conserved. They do not, however, offer particular management problems. Wildlife value attention centers on the elk which are an important big game hunting species in the area. However, the Corridor is primarily a summer range area and there is no substantial evidence that opening the area by logging roads would disperse and improve hunting conditions or benefit the distribution of kill as claimed.

Action

Widespread public concern about the proposed Forest Service plans for multiple use development of the area led Secretary Freeman, in 1966, to appoint a special 6-man committee of men with wide experience and specialized knowledge in wildland resources. All had substantial first-hand knowledge of the general geographical area.

Pertinent portions of the Secretary's charge to the committee follow:

> The Forest Service has drawn up plans for the use and development of the various resources in the Magruder area. These plans are aimed at coordinating the area's various uses and activities in such a manner that they are developed in a combined pattern which will be of the greatest public benefit. During recent months, a number of questions have been raised about these plans. They touch on such matters as soil fragility, ecological relationships, the possible effect of resource management on downstream fisheries, and the overall management of this area.
>
> I want the committee to review, on a broad basis, these Forest Service management plans for the Magruder area and advise me

whether, in its opinion, it is feasible to execute these plans or plans of this character. The committee should also advise me whether it is in the public interest to manage the area in accordance with these plans.

You should plan to gather information in whatever manner seems appropriate. You will want to visit the area on the ground. You will also want to meet with groups and with interested and informed individuals. And you may want to hold public meetings. I leave it to the committee's discretion to determine the manner in which it may wish to conduct any such public meetings.

It is my desire that we have management objectives for this area which will realize for the people who live in the vicinity of the National Forest and for the people of the country as a whole a pattern of use that will assure the highest long-term public values.

The committee inspected the area by small airplane, helicopter, road, and on foot. The Forest Service furnished its available information, including the multiple use plan and resource management plans; thorough discussions were also had with Forest Service people. The committee also obtained from various other sources further information on soils, hydrology, ecology, climatological data, fisheries, wildlife, timber, entomology and pathology, and also information from similar areas in which logging had been done. It consulted with many people. It held three working meetings to thoroughly review and integrate their information, and collectively prepare its report. The committee considered and weighed, as best it could, all resource values. It also held three public meetings, at Grangeville, and Boise, Idaho and at Missoula, Montana. These were open to all interested individuals as well as to numerous organizations. The committee also received a large number of resolutions and statements from many groups and organizations as well as many letters.

The crux of the problem facing the committee is indicated from the following passages taken from its report of April 17, 1967 which was presented to the Secretary in person.

> The specific concern centered on the possible results from timber use and concomitant road construction. About 85% of the area had been classified as general forest land and the Forest Service was preparing to initiate timber road building and timber cutting in this area without clearly stated limitations or restrictions relating to this use or to other values in the area.
>
> The committee encountered difficulty in evaluating Forest Service plans concerning the Corridor. Multiple use, as applied by the Forest Service, is a constructive concept, and a necessary statement of policy and principles. But, at best, it should be regarded as only a framework for approaching the complex problems of forest land management. It is not a formula for specific land use allocation in a particular area. Multiple use plans are prepared for large areas and all rather closely follow the same pattern. Considerable reliance is placed on rather arbitrary zoning that can partition integrative consideration of an area as a whole.

On April 1, Secretary Freeman released a statement commenting at length on the committees' recommendations, all of which were approved. Committee recommendations pertinent to the context of this report are as follows:

> The committee believes that there are three primary values of the Magruder Corridor that should govern its management. All of these stem from its geographic location. The Corridor is:
>
> a. A strategic watershed as regards both water supply and fish constituting a major portion of the upper Selway River.
>
> b. A historic and important natural connection between Idaho and Montana.

c. A recreational area important particularly as providing an avenue of access to two great wilderness and primitive areas of national significance.

As a guiding policy, all land management within the Corridor, and including all land use zones, should reflect and maintain wildland conditions consonant with these primary values.

Management of the Corridor must promote water quality and flow conditions that will maintain and if possible enhance the environment of the anadromous salmon and steelhead populations. The Magruder area is a critical rearing area for the Columbia River drainage in which heavy investments have been made to sustain its fisheries.

Timber cutting and concomitant logging road construction should be deferred until:

a. More specific and comprehensive evaluation is made of the timber management values and potential of the area.

b. Prevention of significant erosion and stream siltation of the Selway River and its tributaries from road construction can be assured at justifiable cost.

c. The scenic aspects of present methods of cutting and striping an area with roads is given further evaluation to determine where cutting reasonably could be done in relation to recreational use as conditioned by high demands for aesthetics in the area.

All road construction and maintenance in the area should be based on integrated planning for the area as a whole in consonance with its primary values, and recognizing the high costs of building and maintaining roads that will not result in significant erosion and stream sedimentation.

The committee believes that more thorough consideration should be given to recreation uses

and values in the management of the Corridor. It is suggested that a long-range recreation plan be prepared including: [detail omitted].

The Committee believes the Forest Service has in the Magruder Corridor, as elsewhere, an opportunity to demonstrate that under unrestricted national forest classification, it can manage the land so that primary values can be balanced with several uses over an area as a whole. The Forest Service needs to strengthen public confidence that wildland areas can be managed for a primary use or uses without being specially designated. A well-integrated plan, with reasonable flexibility to meet changing conditions of the future, should precede field execution.

The recommendations of the citizens committee met with general approval, including that of the Forest Service which gave full and unstinted support to the study.

Conclusions

The Magruder Corridor case illustrates three significant points about multiple use as applied in a particular situation.

1. The Multiple Use Act of 1960 gives a broad charter of principle and policy pointed in the right direction but does not, and cannot, provide a direct answer to the "mix" of land uses appropriate in a particular situation. Procedures developed by the Forest Service do not do this either, but they do give a framework for approaching decisions in such cases.

2. The technical crux of the matter, as encountered here, is evaluation of the several resource values and their interrelations. This the committee attempted to do, although it was undoubtedly able to bring to bear more collective expertise and opportunity to analyze the area than is available to a public agency on every land resource value problem. The committee evaluated in physical and quantitative terms as far as it could, also considering resource interrelations and relative importance based on collective judgment.

3. The final and crucial problem, as always, is final weighting of resource values leading to specific decision on land use. This properly includes consideration of public concern: the "interests of the American people", which public agencies are directed to serve. In any particular situation, such as the Magruder Corridor, these interests are represented by a particular aggregation of concerned individuals and organizations. These were strongly expressed in this situation, as in 1961 when public hearings were held on the Selway-Bitterroot Wilderness Area. This was the time when the Magruder Corridor area was withdrawn from the previous primitive area status, an action which occasioned the controversy.

The committee considered these expressions of public concern as a factor in relation to the physical-biological character and compatibility of the several land resource values present in the Magruder Corridor. The aim was to seek that "judicious combination" prescribed in the Multiple Use Act. There is no formula here.

The Magruder Corridor case shows one means of meeting land use conflict situations by bringing to bear the expertise of a "blue ribbon" citizens committee. It also shows that considerable controversy can be generated by decisions involving broad agency discretion that are made on the basis of a limited concept of potential land uses.

Wilderness and the Economy in West Virginia

The Situation

The Monogahela National Forest of West Virginia is located in the most mountainous section of the State. The mountains, rivers and broad expanses of unbroken forest make it especially appealing in a state where much of the surface has been abused by mining and in an area close to major metropolitan centers of the Eastern Seaboard and the North Central region.

The Monongahela was one of the first forests established following passage of the Weeks Law in 1911. At that time much of the forest land was in a severly depleted condition as a result of heavy logging. The forest has made a remarkable comeback and is now an attractive and productive forest property.

During the early part of the last decade, the economy of West Virginia was depressed, primarily as a result of changing technology in the production and use of coal. West Virginia was the only state in the East that lost population in the past twenty years. The population loss between the 1950 and 1960 censuses was 13 percent. The 1970 census is expected to show that population has remained about constant since 1960.

West Virginia is in the heart of Appalachia, the target of a Federal program for economic uplift of the mountain counties of the Eastern States. The Appalachia Development Act recognizes the importance of the timber resource to the economy of the Appalachian States. To provide a way to stimulate the timber industry to realize more fully its potential in benefits to the area, the Act provides for the establishment of timber development organizations.

Resources and Values

Timber now makes a significant contribution to the economy of West Virginia. There are over 1,000 wood based plants in the State with an annual demand for raw material of 450 million board feet of timber, which should continue to play an important part in the State's economy. Timber generates about $100 million in economic activity. The State's 11 million acres of hardwood contains the largest volume of hardwood growing stock of any state.

Timber from the Monongahela National Forest is a sizable factor in the State's timber economy. The 1969 cut was 42 million board feet and stumpage receipts were $784,000. The

774,600 acres of commercial forest land on the national forest has an inventory of 2,660 million board feet of sawtimber and 6,700,000 cords of pulpwood. Annual growth is 91 million board feet, which when compared with the annual cut of 42 million board feet, indicates the potential for the future impact of the national forest on the timber economy of the State.

An expanded road system is needed if Monongahela timber is to make its full contribution to the State's economy. At present the planned road system is only one third completed. The annual allowable cut for the period 1964-73 is 56 million board feet and 50,000 cords. To attain this annual cut in the next plan period requires expansion of the present road system.

Improving the economy in rural sections of the United States has long been a mission of the Department of Agriculture. At a meeting to promote rural industrialization, Secretary Freeman said, "I believe that by stopping -or reversing- the tide to the cities, we can perhaps give them a little breathing space in which to cope with their horrendous problems, and I have never been more sincere than in the belief that if we don't do something to restore rural-urban balance in this land, we are inviting national disaster well before the year 2000."

His successor, Clifford M. Hardin has said, "We must make it a matter of urgent national policy that we create in and around the smaller cities and towns sufficiently good employment opportunities and living environment that larger and larger numbers of families will choose to rear their children there. Our goal is to establish a set of conditions that in time will bring about a redistribution of the population." Noting the predicted population rise of 100 million during the next 30 years, he said, "A policy designed to promote unprecedented growth in the nonmetropolitan areas... becomes mandatory."

For reasons of location and soil productivity the small towns and rural areas within and adjacent to the Eastern National Forests have been largely bypassed in the wave of economic growth enjoyed by the rest of the country. If Secretary Hardin's objectives are to be realized, the impact of the economy of the area must be given added weight in considering resource emphasis alternatives.

The solution to West Virginia's economic problem lies in attracting industry that can develop its resources and employ its people. All resources of the Monongahela National Forest can contribute, but the timber resource appears to offer the best opportunity of directly sustaining economic activity.

On the other side of the coin, because of its proximity to the eastern seaboard and because of the rugged beauty and undeveloped, remote expanses of forest, the Monongahela is highly prized by members of conservation organizations in Washington, D. C., Pittsburgh, and other urban areas within a day's drive of the forest. Spelunkers, mountain climbers, white water canoeists and hikers find it the best nearby area to enjoy their sport. To further their interests, they have formed the West Virginia Highlands Conservancy.

Action Taken

In the past few years several proposals to establish wilderness areas in parts of the Monongahela have been initiated by members of conservation organizations that are centered in the cities outside of the State. Many members of these organizations were displeased with the Forest Service plan for the Spruce Knob-Seneca Rocks National Recreation Area. They were opposed to the scenic roads, impoundments and high standard campgrounds planned, although the intent of the national recreation area was development for public recreation. They urged that no timber cutting be permitted, although the law calls for development and utilization of resources, provided that use and development "is compatible with and does not significantly impair the purposes for which the recreation area was established."

Primarily as a result of their protests, 21,000 acres in the 100,000 acre national recreation area in which commercial timber harvest will be excluded were set aside even though there is no indication that Congress intended this area to have what amounts to wilderness status. These areas, called "pioneer zones," are intended for primitive recreation. An additional 34,000 acres of the national recreation area will be managed principally for aesthetics in water and scenic zones.

Other areas are being promoted for wilderness designations by the West Virginia Highlands Conservancy members. These are Dolly Sods, the Otter Creek drainage and the Cranberry backcountry, which are not contiguous to the Spruce Knob-Seneca Rocks area. Dolly Sods is an area of about 5,000 acres, with less than 1,000 acres of it timberland. Otter Creek consists of about 22,000 acres, all timberland and much of it quite productive. The Cranberry "backcountry" is about 50,000 acres, all in timber. If these areas, together with the 34,000 acres of national forest land in the Spruce Knob-Seneca Rocks national recreation area were to be given what amounts to wilderness status, approximately 100,000 acres of the national forest would be removed from timber harvesting. This would reduce the national forest annual cut by an estimated 14 million broad feet of sawtimber and pulpwood with a possible annual loss to the economy of over $900,000.

Of particular significance would be loss of the production of Otter Creek. If this area of 22,000 acres were placed in wilderness, it is doubtful that the Parsons Forest Industries mill in nearby Parsons could continue in operation. A similar situation obtains with respect to the Cranberry "backcountry". If this area went into wilderness, the Georgia-Pacific mill in nearby Richwood would feel the pinch. This mill employs 175 persons in the mill and 50 to 75 in logging. Thus, while the national impact or even the regional impact of reducing the allocable cut is not substantial, the local impact in areas that are already economically depressed could be severe.

The groups outside West Virginia promoting wilderness are dedicated to the mission of preserving or recreating wilderness for its spiritual values and opportunities for primitive recreation. Impacts on the economy of local communities on this scale do not impress them.

There are only two wilderness areas in the national forests of the eastern region. The mammoth 1,029,000 acre Boundary Waters Canoe Area on the Superior National Forest and the 5,552 acre Great Gulf Wilderness on the White Mountain National Forest in New Hampshire. According to the Eastern Region of the Forest Service, there are few, if any, opportunities for national forest additions to the Wilderness System. It is the Forest Service belief that population pressures and past history of settlement and development preclude establishment of additional wilderness in the East. Apparently, wilderness preponents do not agree with this judgment.

Recognizing that large areas of undeveloped forestland have unique values that cannot be found in the usual national forest camp and picnic grounds, which are accessible by auto, the administrators of the Monongahela National Forest have developed a "backcountry" area concept; the Cranberry "backcountry" is an example. This 50,000 acre area is fairly well roaded, but it has been gated against private motor vehicles for thirty years. This was originally done soon after acquisition as a fire prevention measure because the area had been logged and heavy slash over the entire area made an extremely high fire hazard. As the years went by, the fire hazard subsided but other values of barring public traffic became apparent. Because it was one of the few areas where poaching could be controlled, it was designated as a State-Federal cooperative game management area, with the intention that it serve as an area where turkey and deer could be introduced and built up to stock adjacent areas. By the time it was no longer needed for game management, it had become popular as a walk-in area where people could hunt and fish.

Restricting access to foot travel limited fishing and hunting pressure and people in the surrounding area feel their sport is better as a result.

Timber in the "backcountry" is managed to the same intensity as the areas outside but this management apparently does not detract from its use as recreation for those who want to get away from crowded or regulated camping, picnicking, fishing and hunting.

"Backcountry" areas satisfy the want of West Virginians for solitude and other values of wilderness, but does not satisfy those interested primarily in wilderness values. They object to logging and they want the set-asides made more permanent; they want areas placed in the Wilderness System and above the "whims of frivolous agency managers. As indicated above, the Cranberry area served changing resource needs of p st years well at least partly because changes in management direction reflected these changing needs. While most of the impetus in favor of wilderness status is from outside West Virginia, there probably is some support from within the State. Only those individuals and communities directly affected by withdrawal of the lands from economic uses are likely to protest.

Administrators of the Monongahela and other eastern national forests have recognized the values treasured by wilderness advocates by designating areas for limited use as "scenic areas" under authority of the Regional Forester. There are two such areas, totaling 1,001 acres, on the Monongahela National Forest, while the White Mountain National Forest, which has felt the pressure of an urban oriented population for a longer period, has nine areas with 28,066 acres.

Conclusions

It is conceivable that wilderness proposals in West Virginia would be successful if proposals were made on a piecemeal basis. But it is also possible that a solution would be to designate additional scenic areas. The scenic areas would be smaller in size and could possibly be designed to take only the least productive sites in the proposed area out of general forestry category.

Wilderness areas are costly. Land is taken out of resource production and administration is costly because modern efficient transportation cannot be used. Recreation use is only one of the public values claimed for wilderness. Eliminating recreation use of wilderness areas would greatly reduce cost of administration but it is doubtful if a wilderness area in which recreational use were prohibited would receive wide support.

As wilderness area use increases, solitude, the prime value of wilderness, suffers. The choice then is regulation to limit use, which would add substantial, and perhaps prohibitive, administrative costs, or to create more wilderness areas, which takes more land out of production. Under conditions in the eastern United States, where probably no areas are truly wilderness in the sense of never having been "used" by man, defining "backcountry" areas or scenic areas may be an appropriate way to recognize wilderness type values and yet provide flexibility in management.

The Wilderness Act refers to wilderness as a resource, but can it be considered a resource in the context of the Multiple Use law? Following the lead of Congress in the wording of the Wilderness Act, the Forest Service has considered it so in applying the Multiple Use Act, which does not refer to wilderness as a resource but does recognize the public need to maintain some areas in a wilderness condition. In effect the Multiple Use Act says that notwithstanding the multiple use directive of the Act, limited use wilderness areas may be established on the national forests.

Changing the Guard in the North Cascades

Establishment of the North Cascades National Park in 1968 resulting in the shift of some 660,000 acres of land from the administration of an agency whose broad charter is multiple use to one whose charter is preservation and providing for the enjoyment of the people. Much of the discussions that took place prior to the actual establishment of the park focused on whether or not a multiple use mandate was adequate to provide for preservation of some parts of the North Cascades and for recreational development, which most people seemed to agree was desirable. This case example examines the background for establishment of the park in the context of multiple use versus restricted use mandates.

The Situation

The Cascade Range runs parallel to the coast across the State of Washington, and the northern two-thirds is about two hour's drive east of Puget Sound. Thus these spectacular mountains are within the range of the fast growing metropolitan centers along the Sound. Until recently the area has been poorly served by roads, but the new North Cross-State Highway will soon traverse the northermost passes. Better access coupled with rising interest in outdoor environments led the Congress in 1968 to revise management responsibilities and land use priorities for the Federal holdings in the North Cascades.

Most of the North Cascade country was in Federal hands, managed since their beginnings early in this century by the National Park Service and the United States Forest Service. As early as 1899 scenic values were recognized by setting up the Mount Rainier National Park which now contains 241,000 acres. The balance of over 6 million acres of Federal land that lies between this park and the Canadian line had been managed by the Forest Service. The high scenic value of the high mountain parts of the national forests had been widely recognized for over 60 years. Since 1906, at least 29 serious proposals had been made to give national park status to various parts of the Forest Service land. Some of these suggestions reached Congress in the form of bills, but none of them succeeded.

About 1959 the proponents of a national park changed their strategy and began suggesting that the Departments of Interior and Agriculture make a joint study of recreation and land use possibilities in the North Cascades. As part of the "peace treaty" between these two departments with land management responsibilities, a joint study team was finally appointed in 1963. The process thus started led the Congress five years later to create a national park and two

national recreation areas out of Forest Service land, thus transferring over 660,000 acres of land to the National Park Service. In addition, about 530,000 acres of Forest Service Primitive Area was taken into the Wilderness System without any change in administering agency.

The joint study team is worth some special attention because its 190 page report prepared over 2-1/2 years seems to have established the land capability and public interest "facts" that shaped the legislation that finally passed. The members of the team were chosen jointly by the two Secretaries and made a rather well balanced set. Dr. George A. Selke, consultant to the Secretary of Agriculture and Dr. Owen S. Stratton, consultant to the Secretary of Interior (from 9/27/63); Arthur W. Greeley, Deputy Chief, Forest Service and George B. Hartzog, Associate Director, National Park Service (Director after 1/8/64). The Chairman was Edward C. Crafts, Director of the Bureau of Outdoor Recreation, but formerly of the Forest Service. In their letter of appointment to the Chairman, the Secretaries said, "On January 28, 1963, we jointly advised the President that the Departments of the Interior and Agriculture had developed a new conservation policy to help implement the outdoor recreation program of the Administration.... We suggest.... there should be a review of past studies and recommendations, current use and management of the area, proposals for change, and an inventory and evaluation of all resource potentials, including a weighing of the economic and social impact of various alternatives."

The focus of attention was almost entirely on Forest Service holdings and the team achieved remarkable agreement on the recreational quality of the land, past and present uses, differing only on the detailed location of some boundaries. The group split cleanly over the question of future plans and administrative responsibility. The Forest Service believed that its plans and capabilities would fully develop the recreation potentials of the areas under principles of multiple use and sustained yield management. The National Park Service saw a need for establishing two national parks, a national recreation area and two wilderness areas under its jurisdiction. The Chairman split the difference and suggested wilderness areas under the Forest Service and a single national park under the National Park Service. Other incidental suggestions about which there was little or no dispute included the need for scenic highways and trails, some sections of wild rivers and the desirability of keeping the county shares of national forest income unchanged.

There is little doubt that each service was acting in what it conceived as its own best interest -- the National Park Service seeking to expand its influence and the Forest

Service protecting its bailiwick. The Chairman was in the middle searching for a compromise plan that would at least be acceptable to each of the parties, even if it did not have their wholehearted enthusiasm. This conclusion flows naturally from the fact that each service had its own congressional mandate for management and sincerely believed that following it would be in the best public interest. The Chairman no doubt believed the same, and was certainly following his directive "to include in your recommendations more than one action alternative." Thus all three plans were presented in the final report.

The Chairman's proposal was presented in the main body of the report with clarity and a wealth of justifying analysis. There is an interesting contrast, however, between the presentations the two Services chose to make in appendices. The Forest Service plan, although greatly condensed is turgid with fact, figures, detailed maps and lengthy statements of the policy guidelines set up for each distinctive zone. This is in sharp contrast to the National Park Service plan, which is comparatively short and concerned primarily with stating that a need exists, the quality resources are available and the Park Service is ready to take over. One gets the impression that they knew that, except for details, a national park was going to be created.

Viewed as one event in a national stream of public endeavors, it is probably true that the proposal of a national park in the North Cascades was an idea whose time had come. In 1965 the President had mounted a major campaign for the preservation of natural beauty. A very aggressive Secretary of the Interior was pushing hard for more parks and other new forms of recreational establishments. The whole effort was aided and abetted by a powerful array of citizen organizations for conservation. Long recognized as a prime area for recreation and natural beauty, the North Cascades were definitely on the agenda for action. Best of all, in a tight budget year this major addition to the National Park System could be made at low cost because most of the land was already in Federal hands. Certainly all these factors had a major bearing on the outcome of the legislative drive which ended in the closing days of the Johnson administration.

Even though a national park was probably inevitable, the study team greatly clarified the problems and possibilities. One set of public hearings was held before the final report was written; afterwards, the Senate Committee on Interior and Insular Affairs held unprecedented public hearings on the report itself rather than on legislation developed from it. This provided ample opportunity to air thoroughly the main issues and to pinpoint areas of conflicting opinion and values held by various segments of the public. At the same time

the State of Washington was stimulated to make a study of its own and develop a fourth plan for use of the North Cascades. The North Cascades Conservation Council, a citizens group, also developed a complete plan that represented the preservationist thoughts of the various conservation organizations.

The facts brought out in the study report and at the public hearings made it fairly clear that conflicts over the use of land for solitary wilderness and mass recreation, timber, grazing, mining and water development were marginal or could be made so , except under the large scale proposals of the "Conservationists." It also was apparent that those organizations and individuals interested in undisturbed natural environments greatly preferred the preservation mandate of the National Park Service. This group lacked faith completely in the multiple use principles followed by the Forest Service and in the good intentions of that organization to protect fragile environments. On the other extreme, people interested in resource development and hunting opposed the "lock up" philosophy of the Park Service and much preferred the flexibility inherent in multiple use principles.

The study report and public hearings enabled the Administration to come up with a recommendation which rather promptly passed the Senate as S. 1321. In this final compromise all reference to areas south of the Glacier Wilderness Area considered by the team were dropped, and the western boundaries of this wilderness area were adjusted in the Suiattle and White Chuck corridors as suggested in the report. The proposed North Cascades National Park was split in two by creating a national recreation area along the Skagit River and Ross Lake, because of existing recreation developments and present and proposed water impoundments. Existing private resorts and customary hunting areas were protected by designating another national recreation area at the north end of Lake Chelan. The east boundary of the park was also moved westward to exclude much of the North Cross-State Highway, leaving room for the Forest Service to develop a good many of its proposed intensive recreation and winter sports sites. The boundaries of the east part of the old North Cascades Primitive Area were adjusted about as suggested in the report and its designation changed to the Pasayten Wilderness. References to scenic highways were eliminated except to prohibit two specific roads. The county shares of national forest income are kept unchanged and instructions were given not to jeopardize decisions of the Federal Power Commission or the construction of the new state highway.

The House equivalent of this bill was HR 8970, while HR 16252 presented the plan developed by the State of

Washington and HR 12139 was filed for the North Cascades Conservation Council's plan. After further public hearings on all of these bills, the Administration plan was passed by both Houses of Congress in late 1968.

Discussion

Apparently the practicing politicians in the Administration and the Congress had enough information at hand to reach a final decision on the plan they thought would best foster public values in the North Cascades. The study team report certainly furnished a wealth of background material and assessments of the values involved, and this must have helped. However, only the team recommendation was fully analyzed to define the added costs and benefits likely to accrue but neither of the service plans received such full treatment. Nowhere is there a thorough-going comparison of the three plans. Nor is there anything in the written record to suggest that a careful analysis was officially made of appropriate figures of merit and measures of effort associated with the four bills that Congress finally considered. In proposals as complex as these it seems that Congressmen must have had to form intuitive judgments about many facets of each of these proposals that could have been clarified in a balanced analysis by competent land managers.

There is enough hard uncertainty about the relative value of monetary and nonmonetary returns and the probable dimensions of future demands to challenge any decision maker's capacity to reach an intuitive judgment under such conditions of uncertainty. There is no reason to further cloud the basic issues by neglecting to make investigations and analyses that will clarify the hard facts of the case. Although one can argue with the validity of some of the analyses made in the study report and wish for a better treatment of who is paying and who benefits,3/ at least many of the hard facts and soft estimates of one plan are clear. It seems that the Congress did not have the benefit of a similarly consistent effort to clarify the four bills it finally considered. The capabilities for making such analyses are available and ways should be found to use them in making complex land use decisions.

How much did the management practices and policies of the two services influence the North Cascades controversy? The timing of the settlement was perhaps largely a function of the national campaign for the preservation of natural beauty. However, the long standing demand for a national park in the area must be attributed to attitudes of the two services toward land management of which are induced by

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3/ The question of automatically counting Federal costs as local benefits is one obvious practice that should be investigated.

differences in the Congressional mandates and objectives given to each.

The National Park Service is legally charged with protecting unique areas of scenic grandeur and natural splendor and making them available for the enjoyment of the public. Because many park possessions are easily damaged its people have been forced to be very preservation minded. A general philosophy has developed that the wonderful balancing mechanisms of nature will look after the landscape and animals, provided poeple can be managed in a way that doesn't interfere. Another major mission is based on the principle that promoting human understanding of nature will not only add to enjoyment, but also will tend to protect the balance of nature. In line with the theme of protection, minerals are generally withdrawn from entry in national parks, private land can be purchased by the Federal Government when its use is incompatible with park objectives, and grazing, hunting, timber and water developments are generally prohibited. There is no doubt in the minds of most conservation groups that the Park Service is legally and emotionally equipped to give maximum protection to fragil natural landscapes.

The Park Service, however, is concerned with multiple use, even though it has no special congressional directive to do so, because choices must be made among the many kinds of recreation that compete for the use of their lands. The Park Service has ruled out most forms of "entertainment" that center on the use of machines in the woods or massive structures, but there is still a good deal of conflict between outdoor recreation activities if for no other reason than the massive numbers of visitors. The service has in affect used a zoning technique to separate mass recreation areas from portions of parks reserved for more solitary backcountry use by controlling the construction of highways, recreation facilities and trails.

Now that the National Park Service must also administer national recreation areas set aside primarily for recreation but where other uses that do not unduly interfere are allowed -- conflicts between a wider spectrum of users will have to be resolved. It is likely that much more complex management guidelines will have to be developed to reach equitable solutions in the public interest. The Forest Service also manages national recreation areas, but it has a much greater backlog of experience which can be brought to bear on the resolution of conflicting interests.

From its beginnings the Forest Service has noted that many goods and services can be produced on its lands and since they are all of human value, it has practiced multiple use management. Early in the century when the pressure on

the land was not too great it was frequently possible to simply set aside areas especially suited for a specific use simply for that purpose. As demands increased, however, this procedure was seldom possible on a very large scale. One exception is that large areas of wilderness have been zoned for dispersed types of backcountry recreation and the protection of watersheds. The nature of the land in these areas generally makes them unsuitable for other uses except mining, and the Wilderness Act will eventually reduce prospecting and mining in these areas to a very low level. On the balance of its land the Forest Service generally allows all uses, alghough the mix of activities is strictly controlled in an effort to reduce conflicts and achieve a stream of values calculated to meet projected needs.

Conclusion

Recreational wilderness values were recognized early and areas were zoned for those uses in the North Cascades thus providing the Congress with the flexibility of choice that was essential in 1968. Had these lands been managed differently irreversible changes might have been made that would have precluded park, recreation and wilderness areas. The importance of providing low cost opportunities to change the management of an area has not been sufficiently emphasized in the kind of long-term planning that characterizes forest and park management. It might be desirable to officially recognize "flexibility" as having a special value that should be built into any long-term plan. Of course, this suggestion seems to run counter to the drive for "preservation," but all of our personal and public experience seems to show that as we project our estimates of needs and events farther and farther into the future the odds of being right very soon turn against us. Long-term trends are most often interrupted by major discontinuities.

The North Cascades case suggests that the final decision hinged on an intimate knowledge of the resources and people involved. These formed a unique situation that is unlikely to be repeated. It would seem unwise to specify closely an exact format of analysis to be applied to all cases. However, once an analysis is undertaken it should be made in a way that facilitates comparing the probable outcomes of alternative plans of action. It is feasible to insist that agreement be reached on appropriate figures of merit and measures of effort, on the technical feasibility of producing the various values, on measures of flexibility, and on the expected course of future relevant events. At least these points should receive uniform treatment in each plan.

Unfortunately, these conclusions lead to increasingly complex analyses of action proposals. Although this may

help those responsible to reach decisions in a more effective way, a move toward complexity comes at a very awkward time. At the moment, interest in environmental management is widespread throughout this country and a feeling of urgency is leading many people to propose very simplistic programs of action. How the kinds of analyses dictated by our understanding of the complexity of the real world can be reconciled with the demand for simple solutions is a problem that the Government agencies and the Congress may have to solve in the near future.

Wildlife and Other Conflicts with Timber Management

The ambiguous nature of the Multiple Use Act leads to public misunderstanding as to its intent and the ambiguity is carried over into Forest Service policy as to application of the law. In unpublished papers prepared in partial fulfillment of his graduate work at the University of Montana, Carl N. Wilson wrote,

> To date, the Forest Service has not fitted in its basic land management principle, multiple use, with the all-important process of making decisions as to the resource management emphasis that various areas of National Forest land will receive. Multiple use is described as requiring 'well-defined management objectives and plans which are carefully coordinated with resource potential and demands.' In practice, however, the management objectives are couched in very general terms that leave them less than 'well-defined.' Multiple use planning instructions discuss problems of coordinating resource uses at great length but they say little about how resource emphasis decisions will be made where coordination alone cannot resolve conflicting demands.

Forest Service Multiple Use policy, like the law, is written in a way to be politically acceptable. For this reason nationwide Forest Service personnel lack clear written direction. Some Forest Service units are coming to grips with the problem. One region has added direction statements to the regional guidelines, but even these are subject to varying interpretations and the guidelines still contain meaningless 'coordination requirements.' One regional guide provides that in areas zoned for timber production as the principal objective, timber markers "retain aesthetically desirable trees and shrubs whenever practical." With regional instructions like this it is little wonder that the public and cooperating State personnel get the idea that the resource or use they are

primarily interested in will have the emphasis they feel it should have. Forest administrators must walk a tightrope between publics with conflicting interests. They are so fearful of losing their balance that the multiple use guides become political documents, too.

The Situation

Wildlife people have expressed the opinion that "full multiple use" still needs to be achieved on the Monongahela National Forest. They feel "full multiple use" suffers when roads are built in undeveloped portions of the forest for timber harvest. They place high priority on maintaining a big game population in the State and believe large unroaded areas are needed to maintain a population of turkey and bear. They have designated one section of the Monongahela National Forest as a "bear sanctuary". When it is pointed out that the Allegheny National Forest in Pennsylvania has both a large turkey population and a comparatively well developed road system, they counter by claiming the West Virginia turkey is a wilder strain. There is no need to cast doubt on their judgment on this point.

But most state personnel understand the problem national forest managers have in balancing the management of various resources and are good cooperators. Most of the difficulties come from individuals who feel personally mistreated and use the law and pronouncements of policy on mulitple use to substantiate their claims. An individual may want his particular hunting woods left as is or want the timber along the road into his summer cabin or hunting camp uncut, but his complaint is likely to be couched in general terms and be that the Forest Service is not practicing multiple use.

In 1964 the legislature of West Virginia passed a resolution calling for an investigation of the management of the Monongahela National Forest. It was claimed that the clear-cutting used in even-aged timber management

resulted in soil erosion, flooding, lowering of the water table, and damage to the wildlife habitat. The investigation that was made supported the national forest management approach, but this did not end the controversy. In 1968 a similar resolution was adopted. No investigation was made following the 1968 resolution, but a similar resolution has passed in the current session of the House of Delegates and will probably also be adopted by the Senate.

Although the main initiative for these resolutions comes from individuals who feel their hunting territory has been damaged, there is also some support to the complaints leading to the resolutions from people who are disturbed by the scenic disruption of clear cutting, by others who prefer the status quo in their area of the forest, and by a few persons with more technical interests who disagree with research findings that recommend even-aged timber management as a preferred forest practice.

Most complaints that "full multiple use" is not being practiced on the Monongahela National Forest are directed against timber management activities. This is natural because timber management makes up such a large part of the program. The fact that it makes up such a large part of the program should reflect its relative importance on the scale of public benefits of the various multiple uses of the forest. In view of the depressed economy of the State and the importance of timber in bringing in outside revenue to the State's economy, a forthright statement assigning timber a key role in multiple use on the Monongahela could be argued as being quite rational and may well be politically acceptable.

Biologists admit that clearcuts improve wildlife habitat. Wildlife would not be eliminated by large clearcut, but to be of most benefit, the cuttings should be small and well spaced. But clearcuts must also be large enough to make harvest of national forest timber profitable to the timber operator. If timber stands were

to be managed primarily to improve habitat for wildlife, clearcut areas might be smaller but logging them would not be practical. Small size of cutting areas increases the cost of marking sales and road and logging costs may be increased to the point where logging is impractical. And without logging, little habitat improvement would be effected on the forest, since this is the cheapest way of affecting large areas of the forest.

It isn't that timber managers on the national forests are unaware of or ignore aesthetics or wildlife values in their work. Manual instructions for timber management in the Eastern Region includes 4 1/2 pages on measures to make that activity compatible with forest recreation use and forest aesthetics. Equal concern for soil, water, and wildlife habitat is evident in manual instructions for timber management. But the critics of timber management practices tend not to take the broad view and naturally want to see their area of concern be given priority over timber management.

Discussion

The professional resource managers on the national forests try to do a conscientious job in exercising their responsibility to apply the multiple use concept. The decision necessary in determining what resource emphasis is in the public interest is not an easy one. Speaking of this, David White, Director of Forestry at West Virginia University said,

> the use of forests should be subject to rules and analysis that promote efficiency and social welfare. Ideally, then, we should have accurate data on the costs and benefits of alternative policies and practices, and should be able to make sound judgments based on a comparison of the cost-benefit ratios. In the world of private enterprise this function is performed by the free market: the production of a good that promises a profit bids strongly for the needed resources.

But in the question of timber versus recreation, the free market is of little use as an allocation mechanism because one of these "products", recreation, does not generally enter into a market. The forest administrator has some pretty good data to show the social utility of timber. He receives bids on timber sales and can observe the prices of timber products in the open market. But against this quantitative information must be weighed the demands for other rival uses, such as recreation, which often pass through no market and carry no market derived dollar value.

The only recourse for the forest administrator in this dilemma is to remain acutely sensitive to the impulses he receives from the political sphere, from citizens, and from organized groups. It is not difficult to conjure up an image of the forest administrator adjusting his various uses to the point where the screams eminating from the various interest groups have about the same decibel count. In the end, his final decision is a matter of informed judgment.

Dr. White's suggestion would have to be used with extreme care. The complaints on multiple use decisions generally come from those with a personal stake in the question, but are primarily useful only in pointing out what may be a problem. Unfortunately from the point of view of the administrator and perhaps for assuring that the correct decision is made, there is no balancing complaints or clamor from the side that does not feel mistreated. These people depend on the judgment of the administrator to take their viewpoint into consideration.

In questions of resource balance, decentralization of decision-making is vital. The proper balance of uses on one forest might not be appropriate on another. For example, the wildlife need for openings on a forest with

many private inholdings of farmland would be far different on a forest of solid Federal forest land. Local options are desirable also with respect to aesthetic considerations along roadsides. The need for special attention in clearcutting along roads is quite different in the heavy coniferous forests of the West from that in light-volume hardwood forests of the East. The layout of clearcuts in mountains is more critical than in the flat country of the Lake States where a clearcut may provide the variety needed for improving aesthetics.

The orientation of people using the forests varies as well. In matters such as aesthetics, people in one area might be offended by practices which people in another area would view with equanimity. For these reasons regional and national instructions on resource emphasis probably must remain broad.

Conclusions

Choosing among alternative uses and practices on public lands require comparisons of relative values. But measurements of the value of many outputs of public lands are imprecise at best and nonexistent in many cases. Often, the best available measure of relative values is derived by judging the weight of public opinion concerning uses.

Technical and professional judgments are also required in land use decisions. However, care must be taken that technical considerations, for example those related to clear-cutting of timber stands, not automatically override the views of concerned members of the public. In fact, the administrator usually has alternative technical means of achieving broadly similar results, but generally these would lead to higher costs or reduced growth and yield of timber. These have to be balanced against improved wildlife production, watershed condition, or recreation opportunities.

New England Public Forests
A Broad Context for Planning

In New England, and other eastern areas, the relatively small proportion of the overall area in public lands belies the possible influence these lands may have on regional land use patterns. Because of the heavy pressure for recreational use in the area and the relationship of the public lands, national forests in this case, to private lands, land use planning can't stop at the boundary of the public lands if it is to be effective.

The case example below presents an examination of some of the problems faced in trying to balance land capabilities with needs in the context of multiple use directives that leave many questions of the administrator on the ground unanswered and in the context of an organizational structure that may provide conflicting advice to this administrator.

Situation

The Green Mountain National Forest of Vermont extends from the Massachusetts line 85 miles north along the Green Mountain backbone of the State. The area within the forest boundary is 629,019 acres. National Forest ownership is 235,558 acres or 37%. The Green Mountain is a productive forest of northern hardwoods. The demand for hardwood sawlogs in the forest area is greater than the forest can supply. As a result of the quality of its hardwood timber and the demand situation, the Green Mountain returns to the towns ($.73 per acre in 1968) exceeds that of any other forest in the Eastern region.

The allowable cut for the forest at present is 18 million board feet, but this will drop to 13 million board feet in the next planning period as the backlog of old growth is reduced and most of the acreage of second growth is below harvest age. The wood using industries in Vermont produce a variety of products worth about $100 million annually and employ a work force of 10,000. The Green Mountain National Forest produces a substantial portion of the raw material used in the State. In the

last twenty years the cut has averaged over 9 million board feet, mainly sawlogs. Markets for full utilization of pulpwood are lacking, but are gradually improving.

Vermont is probably the best example of a "rural" state remaining in the Northeast. But since the 1950's, shifts in land use from agriculture to recreation and rural residential to speculative holdings have accelerated. Within the forest the remaining farmlands are passing out of agriculture use to new owners for residential estates and for recreation.

Recreation is the leading industry in Vermont followed by Forestry and Agriculture. The skiing business alone brings in $70,000,000. The Green Mountain National Forest is within a day's drive of fifty million people. Recreation use on the forest has increased more than tenfold in the last decade. Most of this use has been driving for pleasure (48%) and winter sports (31%). The developed capacity for recreation on the Green Mountain is minor. Of the 6,282 family camping units in the State, 75% are privately owned, 24% are State operated and 1% is National Forest. The Forest recreation plan projects a need for an additional 1800 camping units by year 2000. The present number is about 100.

Progress in developing camping facilities on the Green Mountain National Forest has lagged because funds have not been available. In one instance public opposition forced the Forest to drop plans for developing a recreation site at a remote pond. Opportunities for water based recreation are relatively scarce on the Forest and many Vermonters would prefer to see the few ponds on the Forest remain wild. National Forest administrators naturally would like to increase their campground capacity. Their 59,800 camping visitor days is compared with 480,000 on the neighboring White Mountain National Forest.

The Green Mountain National Forest leads all national forests in the East in the capacity for skiing on winter sports special use permits. There are six ski areas using a total of 2029 acres of National Forest land. The total investment by owners of these resorts is about $9,000,000. National Forest receipts from the six areas in FY 1969

was $46,455. The forest has inventoried an additional fourteen sites with potential for winter sports development but it is the Forest's policy not to recommend approval of any applications for new winter sports areas. Some of the present ski areas have approved plans for expansion. According to the Forest multiple use plan, requests for expansion beyond that in approved plans will be carefully evaluated in terms of impact on other values. The forest has recently discouraged two requests for new winter sports special use permits and a request for an additional 200 acres by one of the present ski areas, which planned to develop a golf course.

In considering requests for special use ski areas, the Forest is very conscious of the growing feeling in the State that, despite the benefits in local employment and to the tax base, ski resorts extract a price in detracting from the scenic appeal of the mountains. Golf courses would not be objectional from this standpoint and would improve the summer business of the ski resorts but the Forest points out that there are 394,000 acres of private land within the forest, much of it suitable for golf course development.

In addition, it is probably a Forest Service view that golf courses are less compatible with forest recreation in the context of the Multiple Use Act than are ski areas. This may have been true in the days before gondolas and chair lifts but is less valid today. Ski areas require cleared lift lines and supporting towers that cannot be hidden. Many Vermonters and probably summer tourists object to the scars of ski runs. Valley and foothills golf courses would probably add an attractive element to the scenery.

Forest Service organization contributes to the problem of trying to get the proper balance among uses in applying the multiple use concept. In 1965 a Secretary of Agriculture Management Review Committee studied Forest Service organization and one of its recommendations was that the line function be strengthened. They found that responsibility for multiple use decisionswas often assigned to one of

the Divisions with responsibility for one of the resources. It was the Committee's judgment that under this organizational alignment, multiple use decisions could not get the attention it warranted and the Committee recommended that multiple use be made the responsibility of the line officer of the field unit. This has been done, but in matters of long range planning and resource emphasis another step may be necessary.

Long range planning at the national and regional levels is done by each division for the resource or activity for which it is responsible. In the mid-fifties, for example, a long range recreation plan was developed by the recreation division of the Forest Service. Because it was made by personnel with a vested interest in recreation use of the forests, it may be biased in favor of recreation. The division of Engineering is responsible for long range transportation system planning and is to coordinate its planning with the timber management and recreation divisions. But the image any one division has of the objectives of the forest might be quite different than that of the person with overall responsibility. Divisions closest to the seat of power exert stronger direction than the line officer close to the problems. And the line officer is usually so harried with administrative and public relations duties that long range plans in any one area may get only cursory attention. Thus, the Divisions frequently influence the resource emphasis of multiple use decisionsto a greater extent than the line officer who appears on the surface to actually make the decision. The Division has the advantage of being able to concentrate on one subject area. In long range planning, the regional division gets direction from the echelon above, while the line function with responsibility for decisions has less influence on the direction of long range planning.

In the case of the Green Mountain National Forest, for example, the district ranger and Forest Supervisor, who are the line officers with responsibility for choosing among alternative uses of national forest land, are faced with the often conflicting advice of the staff divisions

at the regional office level. How to resolve these organizationally internal conflicts and the same time meet the various pressures from the public for different uses of the Forest and perhaps for uses such as golf courses that are not usually contemplated, is a perplexing problem.

Discussion

The Green Mountain National Forest is not the only organization concerned with the role of public lands and the environment in Vermont. In the past few years, the Vermont legislature has passed a dump law, a junk auto law and a billboard law. A group of citizens have formed an organization, "The Green Mountain Profile Committee," and are pushing for legislation to control development and use of all lands above 2500' elevation in the State. One of the goals of the Profile Committee is the creation of a wilderness strip extending from Canada to Massachusetts along the main ridge of the Green Mountains.

An interagency committee on Natural Resource Public Policy has been formed by the Governor and he has appointed an Environmental Control Commission. For the past two years the Governor has called a Conference on Natural Resources. At the most recent conference on "Maintaining Environmental Quality in Vermont" in May 1969, Governor Davis referred to the environmental bills that have been passed and said, "We still have not proposed a legislative solution that will make it possible to truly preserve open lands, control the use of our resources so that we utilize our land, our water, our mountains and our valleys to the maximum use, so that we can control the development that will come in the future and make it possible for us to expand our recreation economy and our industrial economy without conflicting with each other and with the preservation of our environment."

One of the Conference participants described conditions in his town in Southern Vermont as follows: "This town was engaged primarily in forestry and agriculture for years. Today, with virtually no lands being held for timber production, there is no forestry, and there is but one

active farm. The consultant firm employed by the Regional Planning Commission suggests that, based on present trends, the population will grow from 400 to something in the range of 4200 by 1990." He showed a map of the town, with development sites indicated. Of the approximately 24,000 acres in the town, there are 2000 acres of national forest land, a 900 acre ski area, and 19 separate vacation home subdivisions amounting to about a third of the town's acreage.

With conditions and use pressures changing this rapidly in an area where public lands make up a substantial but not overwhelming part of the total area, the decisions that are made as to use of the land can still be critical in terms of their impact on the area. For one thing, the public lands are the largest single ownership in the area. For another, they constitute an important part of the "wild" scenic resource of the area.

Meeting heavy recreation pressures by developments on the national forest lands, for example, may not be in the best long term interests of the area even though the current pressures seem to point that way. It is not an obvious fact that all recreation development has to occur on public lands. In Vermont, as pointed out earlier, a substantial part of the recreation developments are on private lands.

Public campgrounds serve an important function in attracting campers to an area. When it has been demonstrated that private developments can fill the need, perhaps the public campgrounds have served their purpose. Perhaps the proper role for national forest lands is to provide the trails and outdoor recreation opportunities for people staying in privately owned campgrounds. But this isn't necessarily the kind of direction that would be given by planners in the staff level recreation division. Nor is this kind of a viewpoint of the role of national forests indicated in the multiple use directives of the Forest Service. The Supervisor of the Green Mountain National Forest has given a lot of thought to proper balance in resource management and between development and maintaining

scenery, but the question remains as to whether the judgment of the Forest Supervisor alone will satisfy the public interest intent of the Multiple Use law.

Speaking of a similar situation with respect to the White Mountain National Forest in New Hampshire, Charles H. W. Foster, formerly the Massachusetts Commissioner of Natural Resources, said, "I would like to see the Forest Service enhance its already considerable national reputation by adopting some innovative system which would permit state, local and private interests to share more fully in the land use and management decisions. For example, a policy review board might be instituted at ten year intervals to review prospective plans and programs. Members would be appointed by the regional forester to insure competence and balanced representation. I visualize the board as small but prestigious, its functions ad hoc only, and its deliberations carried out intensively over a span of relatively few months. The board's function would be to weigh the validity of the service's management objectives and policies, to insure considerations of state and local viewpoints, and to serve as an informed constituency for the forest in the surrounding region. The board's discussions would be generally open to the public, its final report morally persuasive but not legally binding. The results, unless I am totally mistaken, would be of enormous benefit to all."

This suggestion is worthy of consideration in areas such as New England, where relative values of uses are changing rapidly and public lands may have a pivotal role in overall land use decisions. Such an approach could help the man on the ground to integrate the various kinds of advice he is receiving from staff level divisions and also provide an indication of likely directions of future change.

ISSUES AND ALTERNATIVES

This section of the report presents a discussion of several problems that have been discussed to some extent in the case examples and of possible alternative means of overcoming these problems. A review of the case studies of land management controversies and problems presented earlier suggests that each is a somewhat special situation uniquely determined by the parties at interest, the capabilities of the resources, and the objectives of the federal agencies involved. The fact that each of these problems arose out of management situations that had been considered to be broadly satisfactory earlier, emphasizes the point that no single decision of consequence is likely to endure. Human vision and aspirations change too rapidly over time. Consequently it seems desirable that land management agencies search for flows of goods and services that will satisfy apparent needs, without unduly sacrificing flexibility to respond to new needs as they unfold.

The issues and possible alternatives discussed below attempt to pinpoint matters of concern that derive both from legislative mandates for managing the public lands for various purposes and from directives or other problems that are internal to the public land agencies and their operations. In all cases, the discussion focuses on matters that involve a decision to use public lands for alternative purposes.

Issue #1

Not all Federal agencies administering renewable natural resources are directed to practice multiple-use management. The Forest Service has practiced multiple-use management since its establishment, and this was confirmed by statute in 1960. The Bureau of Land Management has acted under a similar law since 1964, but this authorization expires soon. The National Park Service is directed to preserve

certain natural environments, scientific values and historic artifacts for the enjoyment of the public. Each agency administering a National Recreation Area is directed to manage the land primarily for recreation and such other values as are compatible and do not unduly detract from this objective. The Bureau of Sport Fisheries and Wildlife has a similar mandate with its lands except that the dominant value is the preservation of fisheries and wildlife.

While the manner in which given areas would be treated by the different agencies may not vary widely in actual practice, the differences in legislative mandates lead to problems in determining which agencies should be responsible for managing certain lands. Confusion also arises as to the nature of each agency's mandate in a subject area that is already a semantic jungle. For example, does the fact that watersheds are given protection on national parks make the National Park Service a "multiple-use" agency? A more consistent application of the mandate to practice multiple use could reduce confusion in this area.

Alternative No. 1. All public land agencies should be directed to practice multiple-use in managing renewable natural resources, unless Congress has established a primary use for specified areas, in which cases incompatible uses would be eliminated.

Most land and water areas together with their flora and fauna are capable of satisfying a number of human needs. With the increasing pressure of population on our fixed land base it is desirable for human welfare that a broad stream of values be realized from the land. If each agency was directed to rationalize the mix of values produced from its areas, implementing this policy would force them to use the best technology available to define the interaction between land uses that conflict, complement or supplement each other. It would then be possible to weigh more effectively the desirability of each mix in terms not only of direct costs and benefits, but also in terms of any trade-offs that may be entailed.

The process of defining the interaction between the use of resources for each purpose would also show how these relationships change as the intensity of management for each value varies. At low intensities of management many values may be joint products, but as intensity increases, competition and the opportunity for trade-offs will inevitably rise. These factors are all too frequently little understood, especially with respect to the competition for scarce investment funds.

A possible disadvantage of this alternative is that some fragile and irreplacable value could be destroyed through ignorance of technical relationships in designing a multiple rather than a single purpose program of action. However, the same thing can happen under present management directives on lands for which the directives do not specifically restrict uses.

Alternative No. 2. Congress should designate the classes of uses that should be considered with either dominant or equal status for each class of public lands.

At present, the Forest Service and Bureau of Land Management are directed to manage lands under their control for a variety of uses, each of which is considered equal to the others. On wildlife refuges, the Bureau of Sport Fisheries and Wildlife is directed to treat wildlife as a dominant use, while other uses, which are not specified, are permitted if compatible. The National Park Service is usually directed to treat preservation of the area and enjoyment of the people with essentially equal status. Other actual uses that occur on the national parks, such as watershed protection, are not provided for by statute. Other agencies administering public lands have no clear legislative directives as to uses.

Adoption of this alternative would help to clarify the meaning of the multiple use directives by specifying the relationship among the various uses for each class of lands. Further, it would provide for clearer distinction, to the extent that they exist, among the agencies and classes of lands with respect to their uses and purposes to be served.

To some extent, this alternative by specifying a list of uses now may lead to inflexibility in management choices in the future.

Issue #2

The authorized values or purposes for which federal lands can be managed vary from one agency to another. The Forest Service in its Multiple-Use Act is authorized to produce outdoor recreation, range, timber, watershed, and wildlife and fish values. The Bureau of Land Management in its Act is authorized to consider all these values, plus those that come from wilderness preservation, industrial development, mineral production, occupancy and the preservation of public values that would be lost if the land passed from federal ownership. The National Park Service is charged with preserving scenery of superlative grandeur and natural wonders together with the scientific values of this land, any items of historical significance and wildlife, and the whole is to be made available for the enjoyment of the public. Agencies that manage national recreation areas are enjoined to manage these areas primarily for recreation values but also for other unspecified uses that are compatible with or do not unduly interfere with recreation.

The character of Forest Service and BLM in many ways is much the same and the values that can be and are produced on these lands are similar. The fact that some values are not specified for national forest lands leaves their status somewhat in doubt. The failure to specify some values for other agencies, such as the Bureau of Sport Fisheries and Wildlife and National Park Service, and to specify values other than recreation on national recreation areas also leaves the status of programs related to these uses in doubt.

Alternative No. 3. Direct all agencies to manage their lands to preserve or enhance the same list of values.

In order to promote as large an output of public values as possible and provide flexibility to adjust to changing needs, the list of values for which public lands

can be managed could be lengthened. The following could be included: outdoor recreation (including the values of wilderness, scenic appreciation, natural wonders, and things of scientific and historic significance); domestic livestock grazing; timber production; fish and wildlife development and utilization; watershed runoff control and utilization; use of land for structures (including roads, transmission lines, pipe lines, buildings, dams etc.); other public values.

If all agencies are directed to practice multiple-use, then having the same list of values to consider in designing the product-service mix for a specific area would lead each agency to use more uniform and complete planning processes. This would facilitate comparing the budget requests from the several agencies to obtain needed values at least cost. A healthy competition might be developed between the agencies in designing efficient and appropriate planning procedures. Because all agencies use the basic financial resources furnished by appropriations, a more uniform treatment of costs might promote greater effectiveness and insure greater equity between segments of the public that pay and those that benefit.

It can be argued that fragile resources capable of supporting only one or a few values might suffer from multiple-use planning. However, it might also be that if a complete list of public values is considered for each area, then the choice of one or more values to enter the planned output mix after due consideration of trade-offs will protect fragile resources. At least there would be less chance of inadvertently allowing uses that destroy or diminish another use.

Alternative No. 4. Specify a separate list of values for which lands are to be managed for each class of public lands.

This approach would be similar to the existing system except that uses would be specified for classes of lands for which subordinate uses are not now specified, such as

national recreation areas and wildlife refuges. The advantages of this approach are that Congress would be required to consider and authorize specifically the uses that it thinks are appropriate for each class of lands that it has designated. This would clarify the present status of some uses on public lands and would give added direction to the administrator in developing land use plans. It should also be noted that this would provide Congress with an opportunity to indicate more specifically what it intends to be the meaning of terms such as outdoor recreation and wilderness on the various classes of lands.

Again, the chief disadvantage of this alternative is that it might lead to inflexibility in planning land uses, which vary from place to place and from time to time.

Alternative No. 5. Add subsurface resources and occupancy uses to the list of values for which national forests are to be managed.

The Multiple Use Act of 1960 for the national forests mentions only renewable surface resources. Other resources of national forests, which are permitted under the existing legal system, are not mentioned even though their use affects the use of the renewable surface resources. Minerals and onsite occupancy uses such as rights of way for power lines and pipelines are examples of such resources. Under the existing laws, use of national forest lands for mineral production is permitted under both the location and leasing systems. Taking into account the possible value of minerals, and planning a rational system of prospecting, mining, and processing in the context of multiple use might lessen deleterious impacts on other planned values. The same is true for occupancy uses.

Issue #3

Definitions in present laws and directives of some of the uses of public lands are general and can be interpreted in a variety of ways.

Some of the ambiguities in the multiple use acts cannot be avoided. Management policy to be applied in all national forests must be broad enough to allow for a variety of conditions including resource capabilities as well as differences in local public needs. But there are some word meanings that could be clarified in the law. A clearer definition of the intent of the words "outdoor recreation" and "wilderness" in the law could be helpful to both the public and the agency charged with administering the law.

It appears that the Forest Service has equated "outdoor recreation" in the law with "nonurban" or "forest oriented" recreation. Agriculture Information Bulletin 301 on Outdoor Recreation in the National Forests says, "Administrative policy has also been directed toward maintaining an appropriate environment for forest recreation. National Forest lands are not made available for bowling alleys, night clubs, amusement parks, carnivals or similar uses of more urban character." This bulletin lists twelve kinds of special uses permits related to recreation including playgrounds and winter sports areas, but does not include, for example, golf courses. It says, "Commercial recreation facilities of all kinds under special use permit are planned and developed to harmonize with the forest setting as well as meet the needs of the public."

Section 2 of the Multiple Use Act of 1960 includes the statement, "The establishment and maintenance of areas of wilderness are consistent with the purposes and provisions of this Act." This places wilderness in the category of a renewable surface resource, which seems to assign a very narrow meaning to the word wilderness. The Wilderness Act, by contrast, describes wilderness as being a far more complex association of values than merely a renewable surface resource. "A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without

permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educations, scenic or historical value."

Alternative No. 6. Define outdoor recreation to include all forms of outdoor recreation without restriction.

This is the broadest approach to defining outdoor recreation and would permit urban and spectator forms of diversionary activity, such as outdoor theatres, as well as rural or forest participatory recreation. Like the other alternative below, this would have the advantage of specifying what is intended by the term outdoor recreation. The advantage of adopting this definition in terms of uses that would be permitted is that greater flexibility in the use of public lands would be permitted. The disadvantages are that many high intensity diversionary uses may not be appropriate on the public lands and these uses can be developed on private lands or on public lands that are transferred to private ownership.

Alternative No. 7. Define outdoor recreation to include only participatory recreation.

This would make it clear that such uses of the public lands as ski slopes, golf courses, and athletic fields are

consistent with the meaning of outdoor recreation, but it would ban such uses as outdoor theatres. It would generally expand the existing definition of outdoor recreation under the multiple use concept. The chief advantage is that greater flexibility would be allowed in meeting future needs.

Alternative No. 8. Define outdoor recreation as "wildland recreation".

This definition would be somewhat more restrictive than the existing definition. It would permit the unsophisticated types of recreation emphasized in Agriculture Information Bulletin #301, but would eliminate developed recreation uses such as ski slopes.

Alternative No. 9. Delete wilderness as one of the uses in the context of multiple use.

The inclusion of wilderness as a use of public lands in both the 1960 and 1964 Acts confuses the intent of Congress as to the use of wilderness areas. Deleting wilderness from the multiple use acts would leave the Wilderness Act as the single directive for wilderness areas on public lands. It would eliminate the confusion as to kinds and extent of modifications that can be permitted on wilderness areas.

Issue #4

The statutory directive for sustained yield management lacks clarity and is inconsistent among public land agencies. Planning land use is done largely on the basis of land capability with little consideration given to defining needs. For the Forest Service and the Bureau of Land Management, "Sustained yield of the several products and services means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources ... without impairment of the productivity of the land". The Park Service is charged with preserving its environments for the enjoyment of the public. Those agencies operating under multiple use are also told to manage all the various renewable surface resources in the combination that will best meet the needs of the American people ... without impairment of the productivity of the land".

Conflicts may arise from these directives: seldom can all the "needs of the American people" be met from

Federal lands alone and frequently a variable flow of values over time is needed other than a "high-level annual or periodic output". Although the concept of sustained yield expresses a concern for the future productivity of the lands, the terms in which yield is to be sustained are unclear. Is it to be in terms of large sawtimber even if markets are shifting toward small timber? Is it to be in terms of forage for cattle as pressures for wildlife increase?

There also appears to be an inadequate consideration of needs to be met from the public lands in the context of land capabilities. Measurement of land capability has little value unless done in the context of meeting definable needs. Sustained yield appears to be based primarily on the biological concept of even-flows and not on the concept of meeting needs without impairing the resource.

Alternative No. 10. Sustained yield should be defined as management of renewable and nonrenewable resources to produce a flow of values calculated to meet an appropriate share of the foreseeable needs of the American people at least cost, action programs to be adjusted annually or periodically to reflect changes in needs, land use capabilities and production technology.

Such a move would lead all agencies to define the "foreseeable future" and adopt appropriate planning horizons. Careful projections of national, regional and local schedules of needs over the planning period would have to be developed to set production goals for each resource-based value. A system of information gathering would be needed to check on whether expectations were materializing in real world activity, and thus stimulate replanning whenever performance differed significantly from expectation. An intensity of management appropriate to expected needs would be encouraged rather than an unspecified "high-level of output" not adjusted to needs.

Public values that are not priced in the market system might suffer in comparison to products that generate monetary returns. Since this sustained yield definition would lead to assessing the probable future needs for all values and selecting a reasonable amount of each to be met from public lands as production goals, administrative procedures can insure that tangible and intangible values receive equal consideration. The emphasis on least cost methods of

production to meet these goals should remove the need to compare the desirability of each value produced on the basis of monetary returns.

Alternative No. 11. Require assessment of current and probable future uses and needs to be satisfied by public lands at the regional level as a guide to planning by matching needs against land capabilities.

To some extent, this is now being done by some public land agencies but the effort is uneven and the case examples suggest that inadequate methods and data are often used. The requirement that such assessments be made would stress the regional aspects of such multiple use planning, which is necessary because of the wide variety in both needs and land capabilities. This approach would also make it clear that the development of plans involving multiple uses at the national level can only be done effectively by pulling together plans developed at the regional levels.

Issue #5

The lack of divisions for implementing planning at the regional and national levels results in contradictory directives to field units and to poor balancing of uses to meet needs on the ground.

In the Forest Service organization, the function of planning the development and use of each resource is assigned the division with staff responsibility for the resource or activity. There is no organizational unit to handle the total planning (or multiple use) function for all resources and activities in a Region or at the national level.

At both the regional and national levels there are Multiple Use Coordinators, usually one person. But real coordination is the function of the Regional Forester and his staff of divisional heads at the regional level or the chief and a staff of divisional heads at the national level. Given the demands placed on the time of the Chief and the Regional Foresters, it is not surprising that much of the coordinating responsibility falls back on those whose work is to be coordinated, namely the heads of divisions.

The line officer at each level (District Ranger, Superviser, Regional Forester) is responsible for coordinating resource planning but pressure of administrative and other duties often results in only cursory attention to coordination of planning. There are multiple use guides, but these are more in the nature of broad direction and

and coordination requirements. Typically multiple use guides indicate an increasing demand for each resource and activity. The emphasis that should be given to balance outputs with public needs is not well defined.

Problems in planning stem from several sources. Some are unavoidable. New legislation or projects may not permit time for thorough inventory, measuring public reaction and developing and considering alternatives. Some problems have come about because of timing. As an example, the division with responsibility for engineering determines that the transportation plan must be updated. Road needs to serve recreation sites and timber access are determined and placed on the proposed system. A year or two later a recreation plan is ordered. In this planning, areas may be identified which should be kept undeveloped for hiking, but in which roads have already been planned. Similar problems have arisen when a reforestation plan is prepared prior to planning wildlife habitat. Open fields that should be maintained as wildlife openings may have been planned for reforestation.

Problems of this kind might be avoided if timing of planning were sychronized by a central planning division. They will still occur,however, in cases where future needs and emphasis in all resources is not known at the start of a sychronized planning effort.

Alternative No. 12. Decentralize planning by delegating planning authority to the regions and create a central multiple use planning division at the regional level.

A planning division would pull together at the planning level the inputs of the various specialties from the separate resource divisions and integrate the results so that internally consistent directions can be passed down to field units where the land use decisions are made. Personnel of the planning division would be committed to no one resource. The present tendency to rely more heavily in planning on resource divisions at a higher echelon than on information from line officers would be eliminated.

Placing the major responsibility for multiple use planning at the regional level would bring the process of integrating needs and land capabilities in a plan down to a level where information can be made available regarding particular units of land, and yet keep such planning

activities at a level where useful direction for integrating multiple uses of public lands can be given to field units where the specific choices are made.

Existing staff functions for resource planning, which are now organizationally located in the individual resource divisions, would be placed under the multiple use division to assure that there is an organizationally effective means of requiring the planning and direction for lower echelons to be pulled together so as to consider all uses simultaneously.

Alternative No. 13. Establish a division for implementing land use planning at the national level for public land agencies.

The lack of integration of resource specialties is evident at the national as well as the regional levels. Establishment of a planning division at the national levels, to which the separate resource divisions would be attached and whose function would be to provide technical direction to field units, would help to assure that various uses of the public lands are considered together. A national level planning division would limit the extent to which separate resource divisions could override the work of regional divisions for implementing multiple use planning.

Issue #6

Methods of implementing planning in the context of various possible land uses are left almost entirely to administrative discretion with little guidance from Congress.
The general approach of the public land agencies to multiple use planning is to zone their lands for particular uses or combinations of uses. The status of such "zoning" is, however, often unclear in the sense that it may have little permanency and, therefore, little real effect on controlling or providing for various uses of the public lands. The Bureau of Land Management is, in effect, given a statutory charter to classify, or zone, its lands in the Classification and Multiple Use Act of 1964, but the agency has generally limited its efforts under this act to distinguishing between lands to be retained in Federal ownership and those to be subject to disposal without formally classifying lands to be retained for particular uses or combinations of uses.

Classification or zoning of lands is perhaps the only effective means of land use planning. But unless the process

and the resulting plans have some sort of formal status, the real strength of the classification process is lost.

Alternative No. 14. Require public land agencies to classify lands for possible uses according to current and projected needs and land capability classes.

This alternative would provide a formal requirement that a form of land use planning be implemented that would show the means to be used for integrating the various uses of the public lands. Since zoning implies a ranking of uses on individual areas of land, this alternative would in effect require the administrative agencies to establish use priorities on an area by area basis, although no overall priorities are necessarily established. The use classifications would have to be flexible enough to permit change from time to time, generally on the basis of a periodic review, but should also be sufficiently rigid to provide assurance to users and others that classifications will not be changed willy-nilly.

The classifications should also specify needs for boundary adjustments by indicating areas to be subject to disposal and areas where further consideration of Federal ownership may be required. This aspect of classification is inseparable from the classification for uses of the lands.

Alternative No. 15. Require the public lands agencies to classify lands by dominant uses on a case by case basis.

This would, in effect, extend the concept of dominant use that is now applied by statute on wildlife refuges and national recreation areas to other multiple use lands, although it would be applied on an area-by-area basis rather than generally to entire classes of land. The application of the dominant use concept is not necessarily in conflict with the more general concept of multiple use and is in fact, the method used to some extent by the Forest Service and BLM. However, giving statutory recognition to the dominant use concept would make it clear that the dominant use on areas so classified would have priority over other uses, and would give an added degree of assurance to users that the dominant use, whether it be for example timber, recreation, grazing, or wildlife, would continue as a use of the area. Provision for periodic review and change would be necessary to meet changing conditions.

Alternative No. 16. Congress should establish a set of priorities among public land uses on a national basis, with provision to change priorities from time to time.

Priorities could be established with or without a set of conditions that would modify their application. This would provide the administrative agencies with a clear directive to be followed in resolving land use conflicts. A single set of priorities established on a national basis, or even on a broad regional basis, would be restrictive to the land manager and would be difficult to apply in meeting the various conditions on an area by area basis. The basis on which national priorities for public land uses, for example between grazing and wildlife, could be established is unclear. National projections of relative demands and some appraisal of supply possibilities would be one approach, but the techniques of making such appraisals are a weak reed on which to build Federal policy.

Issue #7

Consideration by Federal agencies of possible land uses stops at the boundaries of public lands; possible uses are not considered in the context of the entire ownership mix of the area. Disposal policy is not closely tied to such consideration.

Providing for various uses on public lands must be considered within the context of the provision of these uses on nonpublic lands. Some of the case examples show that a better integration of planning on public lands with that on nonpublic lands could lead to more appropriate use of the public lands within the framework of multiple use. While the Federal agencies are not in a position to plan uses of nonpublic lands, they should consider the uses that are being made of these lands and the relationship of such uses to appropriate uses of public lands. In this framework, overall "multiple use" could be achieved where uses of the public lands just complement those on nonpublic lands.

Decisions to classify lands as subject for disposal could also be made in this overall framework. For example, the relationship of scattered parcels of land to the overall uses of public lands in an area would be clearest in the framework of a multiple use plan for public lands in the context of all land uses.

Alternative No. 17. Require public land agencies to indicate use of all lands within the area of plans and to consider these uses in relation to uses of public lands.

This would simply require the administrative agencies to show how they intend to apply multiple use in a framework that would have some uses provided on nonpublic lands and others on public lands. The decisions as to appropriate uses of public lands in many cases would undoubtedly be influenced by considering opportunities in this somewhat broader context.

The effectiveness of multiple use decision-making on public lands in some cases is closely related to the patterns of public land ownership. This does not necessarily mean that ownership in solid blocks is necessary. For example, key areas for providing access may not be part of a regularly shaped block of ownership but may, nevertheless, be highly important to overall multiple use. Other scattered areas, on the contrary, may actually detract from the accomplishment of effective land use by diverting efforts of the administrators. The idea that every tract of Federal land must be developed to its fullest potential without consideration of its relationship to the overall use of public lands in an area subverts the overall administration of public lands.

This alternative would require that decisions on land adjustments be made part of the multiple use planning process and provides one possible standard, which could be applied in combination with others, for deciding on the disposal of public lands.

Issue #8

Specific guidelines for resolving conflicts among uses are not specified by statute nor are they clearly evident in administrative directives.

The multiple use statutes for the national and BLM lands require that decisions as to appropriate uses of the public lands be made with consideration being given to the relative values of the various resources, and that the combination of uses not necessarily be that which "will give the greatest dollar return or the greatest unit output." Thus, some form of social or other values are recognized. In addition, the Secretary of Interior is directed by the 1964 Act to give

due consideration to "ecology, priorities of use, and relative values of various resources in particular areas."

These directives are very general in terms of actually choosing between competing uses of public lands in individual cases. More specific guidelines would give the administrator greater confidence in the choices that he has to make, would give him the assurance that his decisions will be "backed-up" at higher echelons, and would give Congress a better basis for exercising legislative oversight. On the other side of the coin, more specific directives could unduly restrict administrative discretion to meet specific needs and varying regional and local conditions. The basis for adopting more specific guidelines is also unclear.

Alternative No. 18. Require public land agencies to consider a specific list of economic, social, and resource values to be used in deciding on appropriate uses of the public lands.

Such a list could include, among things, net dollar return to the Federal Government, contribution to national and regional income, effect on economic operations of users, effect on noneconomic users in terms of quality of use, payments to State and local government, short and long-term effects on the basic resource, and impacts on environmental quality. In fact, in most cases the agencies do consider a list of factors much like this either implicitly or explicitly in making their decisions. Requiring them to do so by law still does not get at the problem of a lack of a framework for integrating and weighing the various factors. It would, however, provide an expanded sense of what Congress considers to be important factors with respect to public land decisions than now appears in the multiple use acts.

Alternative No. 19. Require the use of ad hoc citizen review boards on a regional basis at 5-year intervals to advise the agencies on methods of determining land uses.

This approach recognizes the difficulties of developing a single specific framework for multiple use decisions and the fact that there are great regional variations in the needs to be served by public lands and the conditions of the lands. The review board would consist of some persons chosen for technical expertise and some chosen for general awareness of public land problems.

The task of the review board would be to examine the multiple use planning process and actual decisions over a three or four month period and to suggest methods of improving these by considering other factors or changing the weights assigned to the various factors. It could also point out likely new directions of activity. This type of board should not be confused with the regular advisory boards used by many of the agencies.

APPENDIX

ATTACHMENT I

LAND USE DECISION MAKING

BY

THE BUREAU OF LAND MANAGEMENT

A Case Study

Contributing Report to the
Study of Multiple Use Concepts and Land
Use Decisions on the Public Lands

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February 1, 1970

INTRODUCTION

As part of a larger study entitled Multiple Use Concepts and Land Use Decisions on the Public Lands, this study describes land use decision making procedures used by the Bureau of Land Management, U. S. Dept. of Interior. Specifically it attempted to provide information requested in Section III-B of the Study Plan which states,

> III-B. Case Studies.
> Eight to ten cases involving uses of public lands will be selected to illustrate types of problems that arise in deciding on the use or uses to be made of an area of land. The description of each case will be based largely on material already available as a result of reports or available as documentary information in files, etc. The following indicate the material to be presented in describing each case.
>
> 1. Describe the aspects of applying multiple use concepts and guidelines that resulted in problems. Include an analysis of the relationship among national, regional, and district land administrative guidelines that formed the context within which the plans and land use decisions were developed.
>
> 2. Describe the process through which guidelines from higher offices are translated into working guidelines for field units. Identify the types of guidelines that are used and the information requirements for implementing them. Compare information requirements with available information to determine if the specified guidelines can in fact be implemented.

In addition to the above, questions raised by some of the reviewers of the Study Plan were also integrated into this case study. Specifically these are:

> Case studies should include examples of how multiple use guidelines consider or do not consider state and local needs. (The Resource Agency of California)

Describe the real reasons for "failures" in application of plans. (U. S. Dept. of Agriculture)

Describe the aspects of not applying multiple use decisions even though such decisions have been made--i.e., doing nothing; why, price paid, what to do about it. (U. S. Dept. of Agriculture)

Procedure

Staff of the Bureau of Land Management Director's office in Washington, D.C. suggested three areas as suitable for case studies of multiple-use decision making by the B.L.M.--Monticello District, Utah; Montrose District, Colorado; and Redding District, California.

Though the Study Plan suggested that the case studies should involve data from secondary sources only it was clear from the outset that decision making involves people and therefore a major input in the case studies would be the reaction of those managers involved in the planning process. Also, the problems of inadequacy of guidelines or insufficient data would be more readily apparent to the managers than might be concluded from reading management plans and other documentary evidence. Therefore, a visit was planned to each of the districts suggested by the BLM staff. Visits were made also to the planning staff officer, Mr. Richard Johnson, in the Colorado State Director's Office and to the State Director of Utah, R. D. Nielson.

In each visit the same initial question was asked, "How does the BLM make decisions with regard to what use or combinations of uses will be made on specific parcels of land?" From this lead question others specifically oriented to discover particular problem areas were asked as the respondent described the decision making process. This technique involved one full day in each of the three district offices and two to four hours in the state directors' offices. The information collected from the personal interviews was compared to the

planning guidelines, directives from the Director's office, and Management Framework Plans developed on the districts in order to confirm impressions gained by the interviewer.

Much of the information collected and insights gained will be lumped under a general discussion of the BLM decision making process. Special problems pointed out by the specific interview will only be briefly treated under the headings of the specific districts.

BLM LAND USE DECISION MAKING PROCESS

Background

The Bureau of Land Management is unique among the major federal land management agencies in that it is a relatively young agency compared to the others (created in 1946) and as recently as 1964 had a substantial reorientation in its management objectives. The Bureau is responsible for administering the public land disposal laws, the mineral leasing laws, the revested timber lands of western Oregon, and the grazing districts established under the Taylor Grazing Act. "Until 1964, the Bureau was hampered in developing cohesive long-range management programs because its role, under the Taylor Grazing Act, was essentially that of custodian or interim manager of the public lands pending their disposal." (Herman D. Ruth & Associates, Summary Page I-18)

The Classification and Multiple Use Act of 1964, however, explicitly placed the BLM in a position of managing certain of their lands "to provide the maximum benefit for the general public." (BLM Manual 1602 - Basic Guidance)

> The Classification and Multiple-Use Act (hereafter CMUA) directed the Secretary of the Interior to develop regulations containing criteria to be used in determining which of the public lands should be disposed of and which should be retained in Federal

> ownership for multiple use management. ...The Act listed ten components of multiple use management: livestock, grazing, fish and wildlife development, industrial development, mineral production, occupancy, outdoor recreation, timber production, watershed protection, wilderness preservation, and preservation of public values that would be lost if the land passed from public ownership. It also listed two purposes for disposition: the need for orderly growth and development of a community and chief value for residential, commercial, agricultural, industrial, or public uses or development. (Herman D. Ruth & Associates, Volume I, Page IV-17)

Thus, the Bureau is unique in that it is just now in the process of implementing a Bureau Planning System which outlines procedures for multiple use decision making.

The relatively recent passage of the CMUA has two distinct implications for this case study.

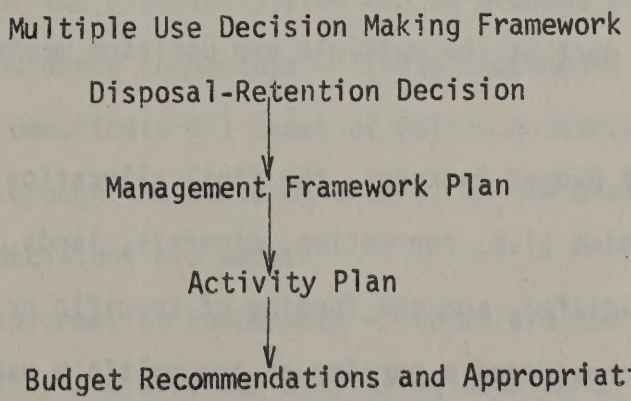
1) The Bureau of Land Management does not have a long history of multiple use decision making. Therefore it is impossible to evaluate the ecological, economic, or social impacts of past decisions. Nor is it possible to examine the process of decision making to the point of implementation. Therefore, possible problems of implementing past decisions cannot be appraised.
2) Multiple use decision making at this stage of development is inextricably linked with the development of the new Bureau Planning System.

Because land use decisions are tied to the newly designed Bureau Planning System there is some overlap between this study and the Regional and Local Land Use Planning Study conducted by Herman D. Ruth and Associates. However, the use of the Bureau Planning System is so new that Ruth and Associates were unable to evaluate the system in practice. Therefore, the

reader will be directed to that study for a more detailed description of the planning process and this study will concentrate on the implementation of the decision making components of the Planning System, and describe the system only in sufficient detail as to place the study conclusions in context with the total planning process.

Levels of Multiple-Use Decision Making

Before delving into the Bureau Planning System and its decision components, I believe it is imperative to identify several points at which land use decisions are made which have a significant bearing on the final uses which can be observed on any particular area of land. This is necessary because Bureau employees when asked to describe the multiple use decision making process immediately refer (and confine their description) to the development of Management Framework Plans and the resultant Activity Plans. (These will be described in some detail later.) There are definitely two additional steps in the multiple use decision making framework.



Though the disposal-retention decisions and budgetary decisions will not be treated in detail in this report it is essential that they at least be explicitly identified as portions of the total multiple use decision making framework.

Though all District Managers are aware of the equal importance of all of these steps in the operation of their district, and possibly the overriding importance of budgetary decisions, they do not tend to think of them as intricately involved with multiple use.

The first, the disposal-retention decision is, of course, a requirement of the Classification Multiple Use Act. The order of events has been to classify lands for disposal or retention prior to going into the analytical details of multiple use decision making which are applied to the retained lands only. Thus a commitment to a specific use is generally made once lands are classified for disposal. In the course of this case study no attempt was made to evaluate any of the disposal decisions that have been made. Therefore, this observation is not a criticism of past decisions but an observation that by the traditional sequence of (1) Classification then (2) planning on retained lands that part of the multiple use decision making procedure has been completed by making the decision that the disposal of some lands for single uses "will provide maximum benefit to the general public." And this decision is made prior to the detailed resource inventories and analysis of state and district resource needs which are part of the multiple use decision making package applied to retained lands.

The preparation of Budget Packages, the final allocation of dollars among the various activities (i.e. recreation, minerals, lands, grazing, watershed, timber and wildlife), and the funding of specific projects within activities must also be considered a portion of the multiple use decision making process. Regardless of the decision as to what combinations of uses are most appropriate on a given parcel of land, the decision by a District Manager to give budgetary preference for one activity over another could con-

ceivably alter the observable product mix being generated on that land. It is also at the budgetary level that national interests may temper decisions which result from a planning system which gives considerable weight to provincial interests. This will be discussed later in this report.

A thorough evaluation of land use decisions by the Bureau would necessitate a study at a later point in time when the impacts of decisions have become measurable. The evaluation would have to include a critical review of disposal decisions and the budgetary and investment decisions as well as what might be considered the more obvious portions of the multiple use decision making framework (i.e. Bureau Planning System).

Bureau Planning System

The Bureau Planning System is designed to "Permit informed and objective multiple use decisions through identification and reconciliation of conflicting land and resource uses in advance of on-the-ground action, with compatible information available for all resources." (BLM Manual 1601 - Planning System.) The components of the Planning System can be grouped under three categories:

A. Guidance components - "These components are used to communicate all types of policy guidance from the Director, through the State Directors, to the Districts where planning decisions are made."

B. Information components - "These are the research components. They are used for displaying data which should be considered in the development of planning decisions."

C. Decision components - These components are used

(1) "to reconcile major land and resource use conflicts and

to apply direction, objectives and constraints for each resource and Program Activity within a specific geographical area" (Planning Unit); and (2) to lay out, in detail, how each activity will achieve the objectives and constraints defined in number 1 above.

A BLM manual has been developed to give detailed procedures for each of the Planning System components. Appendix I lists the title of each of the components and where it can be found in the Manual. Appendix II schematically illustrates the planning process for multiple use management. This briefly describes the components as well as illustrates the sequence of events in the planning process.

At the risk of gross omissions and oversimplification the Bureau Planning System will be described briefly. The point of condensing this 171 pages of manual into a few paragraphs is to focus attention on the major components of the System and how these relate to specific strengths and weaknesses in the decision making process.

The planning process is applied to Planning Units. Each BLM District is divided into several planning units. A unit is an area in which ecological, topographic and jurisdictional considerations are sufficiently homogeneous as to make a sensible land base to treat as a separate decision making unit.

Guidance components--Planning is carried out under the goals for the public lands as expressed in law, executive orders, regulations, and agency priorities expressed in various agency guides and directives. These form the Basic Guidance for the planning process and are spelled out in detail in the Manual. The Basic Guidance is supplemented by an Appendix entitled Program

Outlook Guide which "reflects the Director's estimates of the future program situation and indicates his outlook and goals for the next five years."

> The guide (Program Outlook Guide) is subdivided into two parts. An overview statement relates to all activities. It includes an assessment of policy and budget outlook and identifies priority items of concern to the Director. The second part sets forth five-year goals for each of the program activities which reflects the Director's assumptions, objectives, and priorities.

In addition to the guides issued by the Director's office at the national level, District Land Use Guides are issued by the State Director. These supposedly introduce state or regional priorities or guidance.

Information components--Prospective demands on Bureau managed resources are analyzed in the State Economic Profile which is prepared under the auspices of the State Director's office. Attention to local economic impacts and resource demands is reported in a District Economic Profile. In the cases examined the District Economic Profile was prepared by economists from the State Director's office in one instance and by district level staff in another. The objective of these two components is:

> To insure that the State Directors and District Managers have available, when making planning and program decisions, data relating to (1) the nature, amount and incidence of economic benefits resulting from the present use of public land and (2) analysis and projection of the future supply, demand and need for public lands and resources.

The Unit Resource Analysis is the data base on which land use decisions are made. These analyses involve an"inventory and analysis of current production, use, condition, and trend data of record on all resources within a planning unit." In the Unit Resource Analysis each resource is considered individually. An attempt is made to determine "the full capability and potential of each resource, without multiple use constraints."

Decision components--It is in this component that the conflicts between uses are resolved and thus land use decisions are made. These planning decisions are recorded in the form of a Management Framework Plan. The Management Framework Plan has two parts:

1. Program Activity Recommendations--Consideration is given to the capabilities and opportunities projected in the Unit Resource Analysis, socio/economic needs set forth in the constraints (Basic Guidance), and interagency commitments. Within the capabilities and constraints program activities are recommended for the planning unit without adjustments for the impacts on any other activities.

2. Multiple Use Recommendations--Next, all identifiable overlaps and conflicts among resource program activity recommendations must be reconciled and/or coordinated. The result is a set of multiple use recommendations (with alternatives if any) which must be based on applicable guidance and appropriate supporting analysis.

ANALYSIS OF THE MULTIPLE USE DECISION MAKING PROCESS

Selection of Case Samples

In order to evaluate the adequacy of decision making guidelines, appraise the decision making process, and determine the informational problems associated with land use decision making three BLM districts were selected as case examples. These examples were selected by the Director's office because of their recent involvement in designing or implementing the new Bureau Planning System.

Monticello District, Utah--As yet the Monticello District has not completed a Management Framework Plan for any of their planning units. Currently, they are in the stage of getting oriented to the Planning System. This district was selected for study, however, because of its involvement in testing procedures and evaluation of planning guidelines in their early stages. The

Procedural guidelines were primarily developed by the Denver Service Center of the B.L.M. and then many of them were tested in the South San Juan Planning Unit of the Monticello district.

The South San Juan Planning Unit posed some interesting conflicts which necessitate management decisions for their resolution. The three major conflicts noted were:

1. Open space and natural beauty versus mineral resource development
2. bighorn sheep habitat management versus mineral exploitation
3. military use versus archaeology, grazing and wildlife management.

Montrose District, Colorado--The Montrose District was the first to complete a Management Framework Plan. This Plan for the Gunnison Gorge Planning Unit attempts to resolve several resource use conflicts within an extremely complex jurisdictional, interagency framework. The Planning Unit is bordered by Black Canyon of the Gunnison National Monument administered by the National Park Service. A substantial area known as Fruitland Mesa has been withdrawn for a potential Bureau of Reclamation irrigation development project. In order to replace the deer winter range habitat withdrawn by Fruitland Mesa there is the possible acquisition of a mitigation area. Finally, there is another 24,000 acre withdrawl for possible dam developments in order to serve petro-chemical interests.

Redding District, California--Similar to Montrose, the Redding District completed one of the first Management Framework Plans on the Trinity Planning Unit. This area was selected as an early planning opportunity because of the necessity to relate BLM planning activities to a proposed Bureau of Reclamation project. In conjunction with preparing the Management Framework Plan, this effort supplied information for the BLM to complete an impact report describing

the effect of the B of R Helena project on BLM activities. The Trinity Planning Unit differed from the other two in that it involved only 50,000 acres of Public Domain land (in contrast to over 100,000 in the other two) which was intermixed with U. S. Forest Service and privately owned land.

An Evaluation

As mentioned previously multiple-use decisions are implicit at several points in the operation of a BLM district. This evaluation, however, is primarily concerned with the explicit decisions made in the Management Framework Plan. Within the MFP decision making becomes an issue only when individual resource surveys, analysis, and recommendations indicate a conflict between uses. It is at this juncture that decisions must be made, and it is to this point that the following comments apply.

1. Decisions in the MFP may be influenced too greatly by expediency and national currents of interest which are not specifically applicable to regional or local decisions. When conflicts arise, the planner approaches his decisions influenced to a major extent by the Director's Program Outlook Guide. This guide is primarily a measure of the current "public pulse" as viewed by the Director and is his estimate of priorities on a national level over the next five years. In at least two of the planning units reviewed the District Managers stated that these guides were critical in their management decisions.

   Overemphasis on the Director's Program Outlook Guide introduces three possible problems in the decision process:

   First, the Management Framework Plan is made without reference to a planning time horizon. The Manual states, "No planning horizon is

prescribed since the plans are to be as far reaching as possible." Yet important criteria in the decision process, the Outlook Guides, reflect a current view of political realities.

Second, there is the problem of making a decision based on national priorities when there are overriding local natural resource conditions or regional resource demands.

A third problem is an extension of the second. If all planning units have their resource conflicts resolved with major consideration given to the Program Outlook Guides then the decision with regard to priorities will be identical for each planning unit. That is in fact the decision was made prior to entering the planning exercise.

The immediate rebuttal to the above criticism is that the Planning System incorporates regional and local considerations by means of the District Land Use Guides and the state and district Economic Profiles. These are discussed in numbers 2 and 3 which follow.

2. District Land Use Guides are not a significant element in the decision-making process. Supplemental information to the BLM Manual from the State Director is usually only at the request of the District Manager and not initiated on the part of the State Director's office. In the three case studies only one example of District Land Use Guides could be found and this related only to interpretation of the Manual and was not supplemental to it. Therefore, the guidance components used in decision-making are generated at the national level and do not adequately consider regional peculiarities.

3. The State and District Economic Profiles are not a significant element in the decision-making process. In the cases examined the State Economic

Profiles were rather elaborate documents dealing with the potential demands for BLM managed resources within the state or region. The District Profiles varied from rather detailed reports to a couple of pages of documentation on prospective population growth and narrative on the dependency of local industry on the BLM.

In those instances where rather complete economic studies were attempted there was no evidence of the use of these studies in the decision-making process. The rationale was that there was inadequate communications between economists from the state office and planners and managers at the district level. The managers simply didn't know how to incorporate the economic data into the resource use decision. In one instance much was made of the low family incomes of the area, and yet this fact was in no way apparent in the final management decisions.

4. Influence of the Unit Resource Analysis on the final multiple use decisions is directly related to the academic training of the staff preparing it. The differences observed between planning units regarding their approach to the Unit Resource Analysis may be the result of available personnel. In one instance the Unit Resource Analysis for each of the seven activity areas (grazing, timber, minerals, land, recreation, watershed and wildlife) was conducted by a staff specialist trained in that particular area. In the other two cases the Unit Resource Analysis was prepared by a combination of staff specialists when readily available on the district and the Resource Area Managers. In the latter two cases the Area Manager played a major role in the Unit Resource Analysis. It appeared as though in these cases the URA was not conducted

with the imagination or thoroughness of the URA prepared wholly by staff specialists. The manager who was extremely familiar with the total planning process was less able to divorce himself from guidelines, and planning constraints than the staff specialist. The result of staff specialists preparing the URA was that the true physical or biological potential of the resource came to the foreground.

5. There may be inadequate coordination of uses between planning units. Though no BLM districts have completed Management Framework Plans for more than one district, it appears as though there may be inadequate procedures to assure that the sum of the planning units in a particular district are also viewed as a decision making unit from which there is an optimum combination of land uses. In fact, it seems as though the Bureau Planning System through a strong consideration of the Program Outlook Guides in resolving land use conflicts magnifies the problem of coordination between planning units. If adjacent units have similar resource endowments (which is not unlikely) which give rise to the same or similar conflicts then the process followed is likely to result in each unit arriving at the same conclusion with regard to giving preference to one activity over another. Yet, when viewed from a larger land base such as the district or state a different combination of uses would seem more appropriate.

6. Districts differ in how to treat the problem of inadequate data. The Bureau Planning System is designed to develop MFPs on the basis of mainly existing data. It is assumed that information gaps will be filled at a later date and that the plans are dynamic and will be altered as new information becomes available. The rationale for this is that if decision

making were "put-off" until all the desirable information were available then the implementation of the Planning System might be delayed several years. This appears to be completely acceptable. In resolving land use conflicts some district managers take the attitude that decisions should be made on the basis of available data and that most of these decisions can be altered at a later time if additional information indicates that a change is appropriate. On the other hand, some district managers in their multiple use management recommendations delayed making recommendations until more information could be brought to the decision. Though neither of these approaches are appropriate in all instances, it did seem that there was a basic difference in approach by the district managers interviewed.

7. Bureau of Land Management does an extremely good job of trying to sell their program to interested groups. Appendix III illustrates a copy of the information prepared for the McElmo and Mancos Planning Units of the Montrose District. These will be distributed to inform the public of their management plans and decisions. In addition meetings are held with many interest groups to inform them of changes in Bureau management recommendations.

8. The Bureau Planning System in most respects is an outstanding approach to identifying those activities which are complimentary and those which are competitive. The Planning System is an impressive approach toward inventorying the physical potential of resource development on the planning units. The system of maps and overlays is an extremely effective method of identifying prospective land use conflicts. It is the resolution of these conflicts which points to some inadequacies in the System.

ATTACHMENT II

1601 - PLANNING SYSTEM

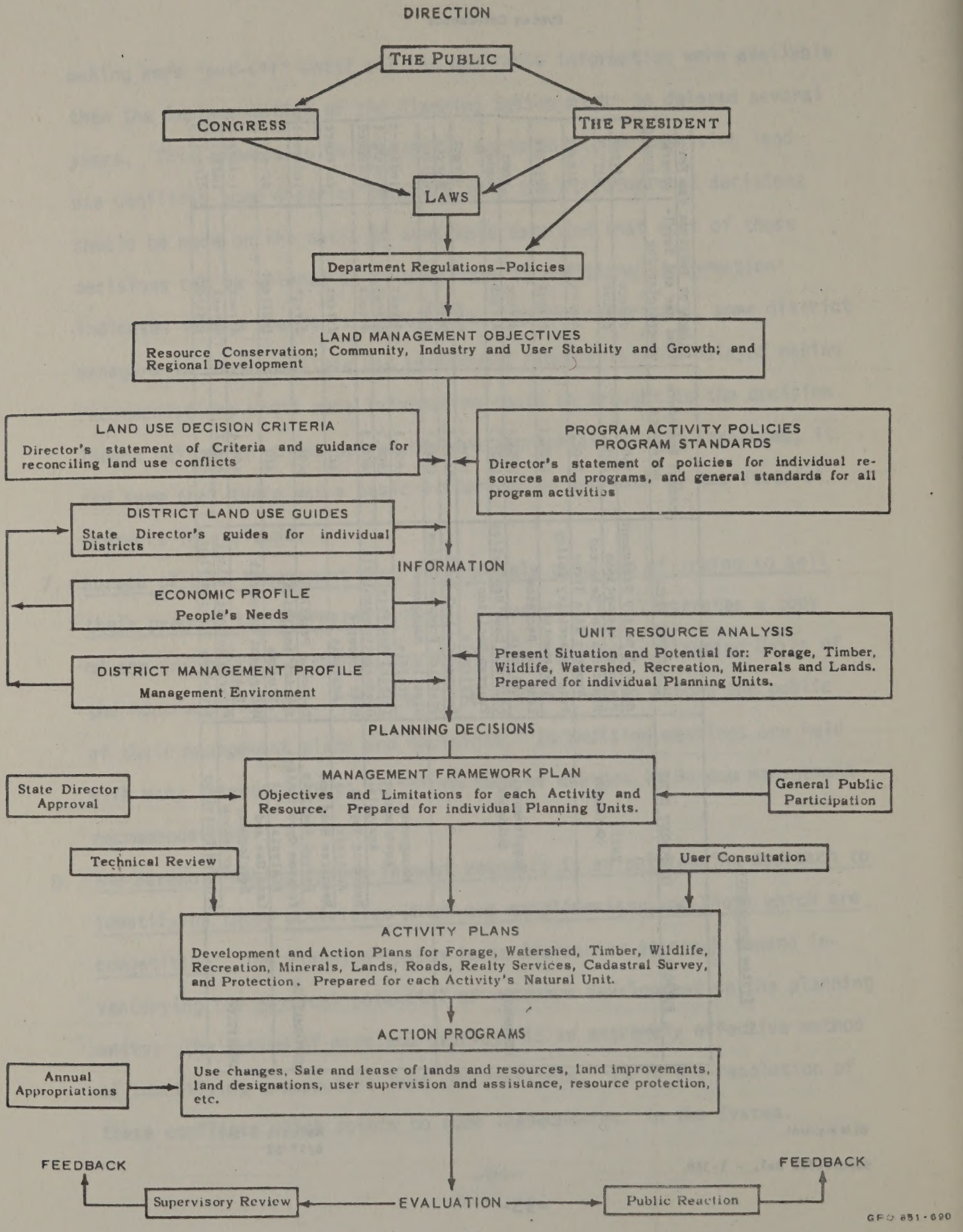
System Components

.2 System Components.

PURPOSE	COMPONENT GROUP	COMPONENT TITLE	Manual Procedure Reference	Direct or Indirect Use For: land use and development planning	Direct or Indirect Use For: program planning
GUIDANCE	Basic Guidance	General Policy Statement	1602.1	direct	direct
		Planning Assumptions	1602.2	direct	direct
		Standards for Selected Program Wide Items	1602.3	direct	direct
	Supplemental Guidance	Program Activity Policy Statements	1603.1	direct	direct
		Land Use Decision Criteria	1603.2	direct	none
		District Land Use Guides	1603.3	direct	none
		Program Decision Criteria	1603.4	none	direct
		Program Outlook Guides	1603.5	none	direct
		District Program Guides	1603.6	none	direct
INFORMATION	Management Environment Analysis	District Management Profile	1604.1	direct	indirect
		Initial Analysis	1604.2	direct	indirect
		Organization Analysis	1604.3	direct	indirect
	Resource Supply Analysis	Unit Resource Analysis	1605	direct	indirect
	Resource Need and Demand Analysis	Economic Profile	1606	direct	indirect
	Program Opportunity Analysis	Special Analytical Studies	1607	indirect	direct
DECISIONS	Land Use and Development Decisions	Management Framework Plans	1608.1	direct	indirect
		Program Activity Plans	1608.2	direct	indirect
	Program Decisions	Five-Year Program Plan	1609	indirect	direct

ATTACHMENT III

MULTIPLE USE MANAGEMENT



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ATTACHMENT III

MULTIPLE USE PLANNING for

The McElmo and Mancos Units

In Southwest Colorado

THE CHALLENGE

The Bureau of Land Management needs your help in drafting a multiple use plan for Public Domain lands in the McElmo and Mancos Units. That is why this booklet has been prepared. It will give you some general background on the lands and resources involved, and some insight into the planning system used in determining management needs for the nation's Public Domain lands.

Please read through this booklet, think about the implications and opportunities it may suggest and prepare yourself, your organization or agency to advise Bureau of Land Management planners when they come to your community or agency.

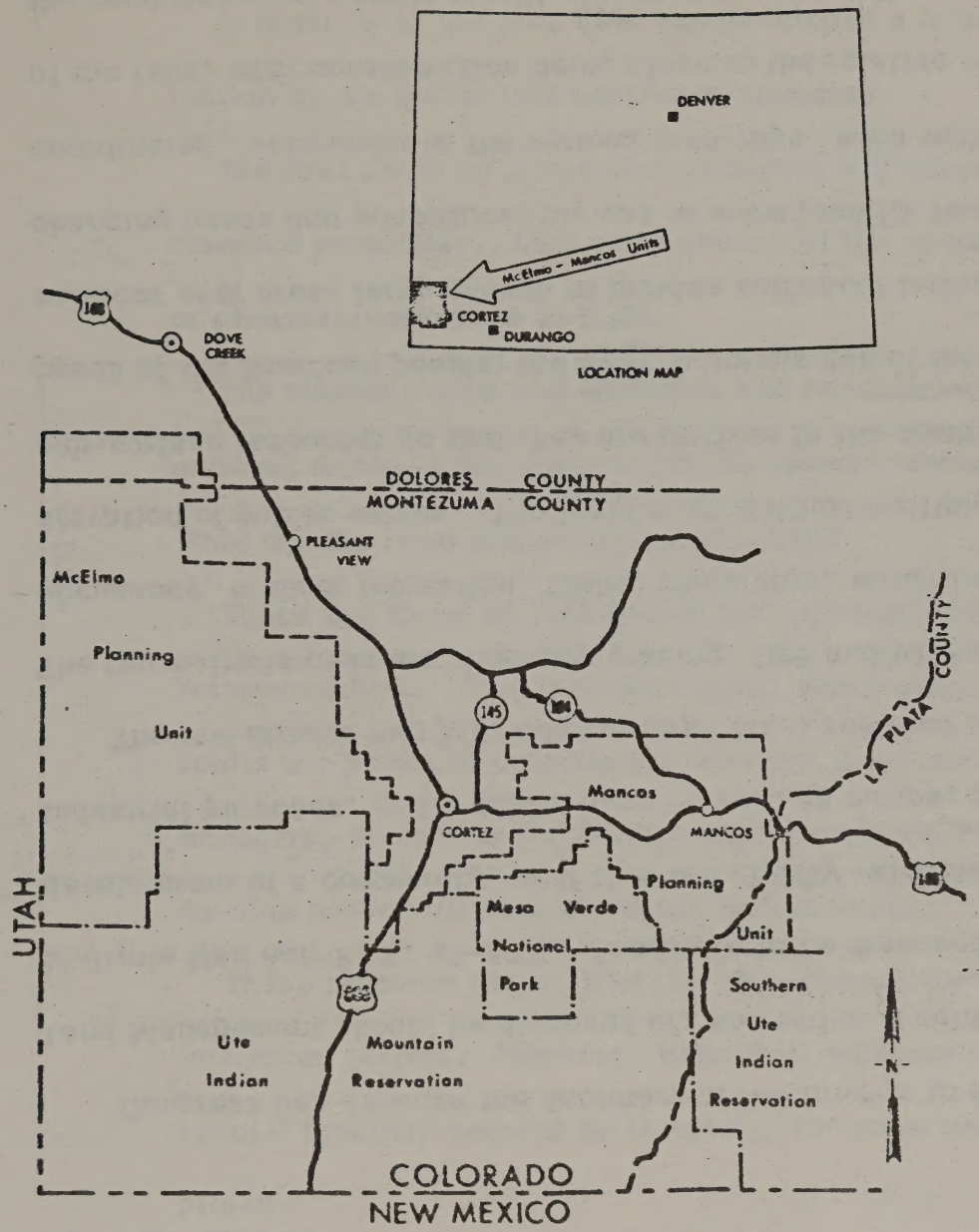
The lands in the Mancos Unit are to be classified according to public recommendations and hearings planned for the winter of 1969-1970. This unit borders Mesa Verde National Park on the north and east. U. S. Highway 160 crosses the unit east to west; State Highways 145 and 184 also serve the unit. The McElmo Unit has been classified for retention and multiple use management. It borders the Utah state line on the west, Ute Indian Reservation on the south and U. S. Highway 160 on the northeast.

BLM has made a general inventory of resources in the McElmo Unit. The need now is to complete the inventory in the Mancos Unit, examine needs and potential in both Units -- then develop a coordinated, multiple use plan to protect, develop, and manage both the lands and the resources in meeting present and future needs.

The Four Corners region, Colorado, and the Nation need the Unit's petroleum and minerals, their forage and wildlife, their recreation space, their natural beauty and archeological treasures, their soils and watershed. How do we harmonize harvest and preservation? Where and how much do we compromise one value in order to benefit from another?

Your ideas and suggestions will be asked for and appreciated.

The Area



The McElmo and Mancos Planning Units lie largely within Montezuma County in southwestern Colorado. They are administered for multiple use purposes by the U. S. Bureau of Land Management through the Montrose District's San Juan Resource Area Office in Durango.

The McElmo Unit contains 158,000 acres of Public Domain land. Most of it has been classified, as a result of formal local recommendations, for retention in public ownership for multiple use management. Within the boundaries are small, single use areas such as Lowry Ruin National Historic Landmark, portions of Hovenweep National Monument, and several parcels classified as archeological sites. The unit is high, dry, rolling pinion-juniper country with deeply cut red and buff sandstone canyons which make access difficult.

About 30,680 acres of Public Domain lands are in the Mancos Unit. Terrain varies from mesa lands and foothills to precipitous mountain sides and canyons.

The Law

Congress has directed the Secretary of the Interior to determine which lands administered by the Bureau of Land Management should be disposed of, and which should be retained in public ownership (Classification and Multiple Use Act; P. L. 88-607). Lands are to be disposed of if they are required for the orderly growth and development of a community, or if they are chiefly valuable for residential, commercial, agricultural, or industrial purposes, or for public uses -- such as dumps, parks, schools, etc.

The law directs that BLM administered lands retained in Federal ownership be managed for multiple uses. The ten multiple uses are livestock grazing, fish and wildlife, industrial development, mineral production, occupancy, outdoor recreation, timber production, watershed protection, wilderness preservation, and preservation of public values. The legislators defined multiple use as - "management of the various surface and sub-surface resources so that they are utilized in the combination that will best meet the present and future needs of the American people; the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output."

The Plan

In order to do the job, BLM has developed a land use planning system. This system calls for participation by the public and concerned agencies.

The first planning phase is a gathering and consideration of information on the Unit's resources and resource potentials. Like other phases of the system, this resource analysis is revised as new information or circumstances come to light.

The second phase is a gathering and considering of social and economic information. What local and national demands are forecast for the various resources? What are the economic needs and opportunities? What are the legal and policy constraints?

These two types of information are combined and serve as the basis for developing the Management Framework Plan. This framework plan, while general and flexible to accommodate changing circumstances, spells out points of coordination between development or use of various resources in the Unit. Resource managers, alerted by the Management Framework Plan to priorities and multiple use aspects, can then develop non-conflicting plans for each resource.

These resource plans, like the Management Framework Plan, are subject to review and suggestions by interested parties. However, individual resource plans which require further study, detailed design, or special funding, may not be completed for some time after the Management Framework Plan has been completed.

THE RESOURCES

The Ancient Ones

The McElmo-Mancos country was home to a vast and ancient culture. Archeologists say that the human population of the area, sometime before Columbus, was three times greater than it is today. For more than a thousand years these ancient Indian farmers grew squash, corn and beans on the mesa tops. They lived on the mesas and had their ceremonies in kivas there. Later, they moved to the canyons. Drouth may have forced them to the south - some experts see close relationships between McElmo's Anasazi (old ones), and today's Puebloans.

Their villages and camps were many. (1600 archeological sites have been counted in the McElmo and Mancos Units.) Some sites are simple pit houses, centuries older than the two and three story apartment houses you find at Lowry Pueblo Ruins National Historic Landmark. Colorado University has been making the archeological inventory for the Bureau of Land Management.

Many sites have scientific and educational value. A large number have great potential as tourist attractions and for handling tourist over-load from other areas, such as Mesa Verde.

Time, weather, and careless people continue to tumble weakened walls. Several impressive structures are on the verge of losing their value to viewers and to the generations that follow.

Except for Lowry, McClean Basin Towers and some Hovenweep ruins, the sites lack information signs, interpretation and public access.

Development of other resources -- petroleum, minerals, construction of dams, canals, and roads -- could destroy valuable archeological sites unless precautionary planning is adequate.

The Wildlife Resource

The McElmo-Mancos Planning Units contain good wildlife habitat. There may be opportunities to make it even better. Wildlife management on Public Domain lands is a joint endeavor with the Colorado Game, Fish and Parks Division. BLM manages the habitat while the state manages the wildlife.

Mule deer are present on the public land in both units. Numbers have increased chiefly as a result of pinion-juniper chaining, which tends to release moisture for more desirable browse plant species. More areas may be suitable for chaining. Deer now attract around 1000 hunters to the area each year.

A small elk herd has been reported in the McElmo Unit. The southern part of the unit appears to be good antelope habitat -- but there are no antelope using the area at this time.

Large numbers of doves summer in the area, especially along Yellow Jacket Creek. There are good populations of chukar partridge in the north and west of the McElmo Unit, and good unstocked chukar habitat in Flodine Park. There are turkeys in the McElmo Unit, as well as waterfowl on Flodine Park reservoir. New reservoirs might accommodate more waterfowl and provide fishing as an added attraction.

Mountain lions are absent from what seems ideal habitat. Coyote numbers are decreasing but 130 bobcats were taken in the McElmo Unit by one trapper in a recent season. Rodents are increasing and damaging new growth in chained areas.

The Minerals Resource

Prominent geologic formations in the area are the Morrison and Dakota sandstones. These formations often hold promise for occurrence of petroleum, uranium, coal and sodium.

The McElmo gas field, discovered in 1944, was followed by the Dove Creek petroleum field in 1948, Flodine Park in 1959, Goodman Point in 1960, and Ismay in 1965. Much of the Public Domain lands are covered by petroleum leases and the National need for petroleum reserves spurs continued exploration. Special stipulations on newer leases help protect archeological sites and other resource values.

Large numbers of uranium test holes have been drilled and further exploration is anticipated. There has been little actual uranium mining to date, but geologically the area presents an optimistic future.

A generally thin, intermittent bed of low grade bituminous coal underlies much of the area. However, mining potential is questionable.

No base metals have been mined in the McElmo Unit, although copper prospects have been staked along a dike that runs northeast from Sleeping Ute Mountain.

Sodium deposits are present, but covered by considerable overburden. Sand and gravel deposits in canyon bottom pockets have some production potential, dependent upon development of nearby markets or more favorable transportation rates.

The Range Resource

Livestock and water distribution are the major grazing use problems. In the McElmo Planning Unit lack of water causes stock to congregate in canyons where water is available while good feed on some mesas goes unused. Snow substitutes for water during part of the winter-spring grazing season.

Early spring grazing is a management problem since April and May are critical times in the growth of many plant species. There would probably be more forage and more plant cover to protect the fragile soil if late winter-spring grazing use were changed to fall and winter use.

While lack of water is a basic problem on the McElmo Unit, long-established patterns of use and economics can't be ignored. Of the 25 livestock owners using the McElmo Unit, at least 15 could not operate without supplemental winter-spring grazing.

More intensive management of allotments plus additional improvements such as chaining of pinion-juniper, stockwater developments, stocktrails and fencing could increase the grazing potential by as much as 20 percent. Several allotment management plans have been drafted, and there are tentative proposals for range improvements. Whatever is done will be coordinated with other resource uses.

The Recreationist

The number of recreationists visiting western Colorado is expected to increase as much as 12 times within the next 25 years. Trends confirm the forecast. By September of 1969 visits to Mesa Verde National Park were up 13 percent over 1968; Black Canyon National Monument use was up 39 percent; Curecanti 41 percent, and Colorado's state parks an average of 28 percent over the same period. Mesa Verde, the main visitor attraction in southwest Colorado, was overcrowded and looking for ways to accommodate the overflow.

Tourism is already one of the "Big Three" in western Colorado's economy. Services related to recreation are the area's fastest growing economic element, and, in 1967, constituted one-fifth to one-third of the total regional economy. Little wonder some economists see recreation as affording the best expansion possibility for the region's economy.

Where will 12 times as many visitors go? Will enough scenic routes, points of interest, campgrounds, elbow room and just enough open space be available?

Local, state and Federal planners are concerned. The depressed economy needs the boost tourism can give; but tourism requires planned, coordinated accommodation. What in the way of points of interest, facilities, scenery, access routes, and open space can Public Domain lands in the McElmo and Mancos Units contribute? What will be the impacts on other uses and basic resources of these public lands?

Colorado authorities predict that the number of out-of-state visitors will more than double in the next five years. It's time to plan!

The Reclamation Potential

The Dolores Reclamation Project will affect some Public Domain resources in the McElmo Unit. The project is designed to furnish supplemental irrigation water to 28,660 acres in the Montezuma Valley. It will also deliver full service irrigation water to 30,840 acres in the Dove Creek area and to 1,500 acres on the Ute Indian Reservation. In addition, the project is designed to supply domestic and industrial water to the towns of Cortez and Dove Creek.

Major features of this approved project are McPhee Reservoir extending 10 miles down the Dolores River from the town of Dolores; Ruin Canyon Reservoir on Ruin Canyon south of Dove Creek and west of Yellow Jacket; Cahone Reservoir on Little Cahone Canyon just east of U. S. Highway 160; and 248 miles of canals and lateral ditches.

Coordinated planning will produce multiple benefits along canals and service roads and near reservoirs and recreation facilities. Joint planning is also in order to determine the fate of archeological sites located on Public Lands which are considered by the Bureau of Reclamation as irrigable.

Ruin Canyon Reservoir is the project which will have the greatest direct effect on the McElmo Unit. It will have a minimum pool of 160 surface acres and is also proposed as a fishery. This reservoir will probably draw additional visitors into the unit and will induce longer stays and more visits to archeological sites. A good campground might be expected to attract big game hunters. An interpretive program related to McElmo's ruins, plus accommodations for more traffic should be considered in the Management Framework Plan to be developed for the McElmo-Mancos Units.

The Land Resource

America's human population is expected to increase one-third by the turn of the century. This trend, coupled with increased mobility, is reflected in local increases in tourism. Some forecasters see new towns and cities being established in the west as a result of mobility and increased numbers of people.

Population increases, forecast in 1967 by the State of Colorado Budget Office, are expected to be about one-third for Colorado as a whole, and one-fifth for Montezuma County. The local increase would restore a 1960-1968 population loss of 10.2% and add about 9% to the 1950-1960 population level.

The national, state and local population increases will create demand for more public facilities such as airports, schools, waste disposal sites, and local parks. In some instances Public Domain lands may be suited to these or similar public purposes. It is possible that Public Lands might also be needed eventually for urban expansion or industrial sites.

Land parcels known to have potential for such public uses should be identified in the initial planning process. The BLM planning system is flexible and allows for new or changing uses. However, unless land needs are identified, use may be established for other purposes, and investments made which would lead to unnecessary problems in converting the lands to a public use at some later date.

APPENDIX V

Supplementary Documentation Available But Not Included as Part of This Report

BLM Manual

1601 - Planning System

1602 - Basic Guidance

1603 - Supplemental Guidance

1603 - Appendix I. Program Outlook Guide

1604 - Management Environment Analysis

1605 - Unit Resource Analysis

1606 - Economic Profile

1608 - Land Use and Development Planning

Management Framework Plan 1608 - Trinity Planning Unit

Preliminary Impact Report, Helena Reservoir Lower Trinity Division North Coast Project California

OTHER PUBLIC LAND LAW REVIEW COMMISSION STUDY REPORTS AVAILABLE

From the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402

Digest of Public Land Laws. Prepared by Shepard's Citations, Inc., of Colorado Springs, Colorado. 1968. $6.50

History of Public Land Law Development. Written by Professors Paul Wallace Gates of Cornell University and Robert W. Swenson of the University of Utah. 1968. $8.25

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From the Clearinghouse for Federal Scientific and Technical Information, United States Department of Commerce, Springfield, Virginia 22151

Clearinghouse prices for these reports are based upon the number of volumes into which each report is divided, indicated for each report in the following listing. Price: $3.00 per volume for paper printouts; $0.65 per volume for microfiche.

Federal Legislative Jurisdiction. Prepared by the Land and Natural Resources Division, United States Department of Justice. Revised September 1969. One volume. Order number P B 185 920.

Study of Withdrawals and Reservations of Public Domain Lands. Prepared by Charles F. Wheatley, Jr. Revised September, 1969. Order numbers: P B 187 002, P B 187 003, P B 187 004.

Administrative Procedures and the Public Lands. Prepared by The University of Virginia, School of Law. Revised September, 1969. One volume. Order number: P B 187 205.

Fish and Wildlife Resources on the Public Lands. Prepared by the Department of Fishery and Wildlife Biology, Colorado State University. Revised September, 1969. Two volumes. Order number: P B 187 246, P B 187 247.

Public Land Timber Policy. By George Banshaf & Company, Milwaukee, Wisconsin. Published in four volumes, Nos. PB 187 728, PB 187 729, PB 187 730, PB 187 731.

Federal Public Land Laws and Policies Relating to Intensive Agriculture. Resources portion by South Dakota State University. Legal portion by Kronick, Moskovitz, Tiedemann & Girard, Sacramento, California. Published in four volumes. Legal portion, Volume I, No. PB 188061; resources portion, Volumes II, III, and IV, Nos. PB 188 062, PB 188 063, PB 188 064.

Development, Managment and Use of Water Resources on the Public Lands. By Charles F. Wheatley, Jr. Washington, D.C., Charles E. Corker of the University of Washington, Thomas M. Stetson, San Francisco, California, and Daniel J. Reed, Los Angeles, California. Published in two volumes, Nos. PB 188 065, PB 188 066.

Outer Continental Shelf Lands of the United States. By Nossaman, Waters, Scott, Krueger and Riordan, Los Angeles, California. Published in six volumes, Nos. PB 188 714, PB 188 715, PB 188 716, PB 188 717, PB 188 718, PB 188 719.

The Forage Resource. By The University of Idaho, Moscow, Idaho. Published in four volumes, Nos. PB189 249, PB189 250 , PB 189 251, PB189 252.

Regional and Local Land Use Planning. By Herman D. Ruth & Associates, Berkeley, California. Published in four volumes, Nos. PB 189 410, PB 189 411, PB 189 412, PB 189 413.

Study of the Impact of Public Lands on Selected Regional Economies. By Consulting Services Corporation, Seattle, Washington. Revised November 15, 1969. Published in one volume, No. PB 190 164.

Land Grants to States. By Commission Staff. Published in one volume, No. PB 191 879.

State Land Resources and Policies. By Commission Staff. Published in one volume, No. PB 192 452.

Appraisal Techniques and Procedures Utilized in Connection with Actions Related to Federal Public Lands, by Kronick, Moskovitz, Tiedemann & Girard, Sacramento, California. Published in one volume, No. PB 193 529.

Inventory Information on Public Lands. By Commission Staff. One volume, now in press.

Disposal Techniques and Procedures. By Raleigh Barlowe, Department of Resource Development, Michigan State University. Published in one volume, No. PB 193 652.

Outdoor Recreation Use of the Public Lands. By Herman D. Ruth + Associates, Berkeley, California. Two volumes, now in press.

Adjustment of Use Rights and Privileges. By the Commission staff. One volume, now in press.